Caelorhinchus argus Weber

Coelorhynchus argus Weber, Siboga Exped., vol. 57, Fische, p. 161, pl. 4, figs. 4-4a, 1913 (type locality : Flores Sea, 521 meters; Macassar Straits, 450 meters; Molucca Passage, 397 meters; Bali Sea, 538 meters). —Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 472, 1920 (between Burias and Luzon; off southern Luzon; between Panay and Guimoras Islands; Gulf of Davao; near Jolo Islands; 135 to 232 fathoms). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 46, fig. 10, 1929 (Bali Sea; Weber's materials).

Caelorhinchus aspercephalus Waite

Coelorhynchus aspercephalus Waite, Records Canterbury Mus., vol. 1, No. 3, p. 178, pl. 29, fig. 2, text fig. 2 (scale) (type locality : New Zealand); vol. 1, No. 4, p. 318, Dec. 28, 1912 (reference). — Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 426, 1920 (diagnosis in key).

Caelorhinchus australis (Richardson)

Lepidoleprus australis Richardson, Pro. Zool. Soc. London, vol. 7, 1839, p. 100 (type locality : Port Arthur, Tasmania).

Macrurus australis Günther, Cat. Fish. Brit. Mus., vol. 4, p. 391, 1862 (type).

Macrurus (Coelorhynchus) australis Brauer, Deutsche Tiefsee Exped. Valdivia, vol. 15, p. 388, 1906 (reference).

Coelorhynchus australis Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). —Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 120, 1901 (Port Arthur; Japan). —Waite, Records Canterbury Mus., vol. 1, No. 1, April 25, 1907 (Reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 426, 1920 (diagnosis in key).

Coelorhinchus australis McCulloch, Austral. Mus. Mem., No. 5, pt. 2, p. 127, June 29, 1929 (reference).

Caelorhinchus braueri Barnard

Coelorhynchus (Oxygadus) braueri Barnard, Ann. Mag. Nat. Hist., ser. 9, vol. 15, p. 501, 1925 (type locality : coast Saldanha Bay; and Table Bay, off Cape Point and East London, 250 to 450 fathoms); Ann. South Afric. Mus., vol. 21, pt. 1, p. 342, pl. 13, fig. 5, June 1925 (same localities).

Macrurus parallelus (not Günther) Gilchrist, Marine Investig. South Africa, vol. 3, p. 137, 1904 (egg : off Cape Point).

Macrurus (Coelorhynchus) parallelus Brauer, Deutsche Tiefsee Exped. Valdivia, vol. 15, p. 257, 1906 (off south west Africa, 981 meters).

Caelorhinchus canus (Garman)

Macrurus canus Garman, Mem. Mus. Comp. Zool., vol. 24, p. 217, pl. 49, fig. 2, pl. 44, figs. 1 and 2 (lateral system) (type locality : lat. 7°12'20"N., long. 80°55', in 182 fathoms; Gulf of Panama, 153 to 210 fathoms).

Macrurus (Coelorhynchus) canus Brauer, Deutsche Tiefsee Exped. Valdivia, vol. 15, p. 388, 1906 (reference).

Macrourus canus Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., 1930, pt. 2, p. 206 (reference).

Coelorhynchus canus Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397 (reference). Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 426, 1920 (diagnosis in key).

Depth 5 3/4; head 3 1/4, width 2 2/5. Snout 3 1/8 in head; eye 4, 1 1/4 in snout, 1 in interorbital; preoral profile concave, length 3 1/2 in head; maxillary reaches nearly opposite hind eye edge, length from front end 3 2/3 in head; mandibular barbel 3 1/2 in eye; teeth in villiform bands, fine, 4 or 5 irregularly in transverse count; interorbital 4, low or very slightly convex. Gill rakers 1 + 9 short spinescent tubercles on second arch, 1/5 of gill filaments, which 1/2 of eye.

Scales (pockets) 80 in lateral line to pseudocaudal; 7 above, 15 below, 16 predorsal forward till opposite hind eye edge. Scales with 4 rows of rather large spinules, first spine only extended little behind scale edge; circuli coarse, complete.

D. II, 10__71, second simple ray slender, entire, length 1 7/8 in head; interdorsal space 3 1/2; A. 75, fin height 5 1/2; pectoral rays I; 19, fin 2 1/4 in head; ventral rays I, 6, fin 2 3/5.

Brown, with brassy and silvery tints on side of head and body, especially forward. Head rather paler than body. Iris pale, gray above. Inside mouth pale. Lower surface of mandible, breast, chest and belly dark neutral gray. Inside gill opening blackish brown, pale will inside. Fins brownish.

Gulf of Panama.

U. S. N. M., No. 57863. Lat. 7°16'45"N., long. 79°56'30"W., Gulf of Panama, in 210 fathoms.

Albatross Collection (D.3389). Length 160 mm.

Caelorhinchus carminatus (Goode)

Macrurus carminatus Goode, Proc. U. S. Nat. Mus., vol. 3, pp. 337, 346, 475, 1880 (type locality : lat. 40°2'54"N., long. 70°23'40", Gulf Stream, in 115 fathoms), p. 475 (type). —T. H. Bean, Amer. Journ of Sci. Art., ser. 3, vol. 22, p. 296, 1881 (lat. 39°57'N., long. 70°31' 30", 225 fathoms; lat. 39°55'N., long. 70°28', 396 fathoms). —Goode and Bean, Bull. Mus. Comp. Zool., vol. 10, No. 5, 1883, p. 196 (lat. 32° to 33°N., long. 76° to 77°"., in 233 to 464 fathoms). —Jordan and Gilbert, Bull. U. S. Nat. Mus., No. 16, p. 812, 1883 (copied). — Miner, Rep. U. S. Fish Comm., pt. 11, p. 184, 1883 (1885) (lat. 39°58' 50"N., long. 70°39'40", 168 fathoms; lat. 39°58'35"N., long. 71°30', 197 fathoms). —(Parker) Benedict, Rep. U. S. Fish Comm., pt. 12, p. 100, 1884 (1886) (lat. 39°57'45"N., long. 70°56'30"W., 195 fathoms). —Günther, Rep. Voy. Challenger, vol. 22, p. 129, pl. 5, fig. 13, 1887 (near Bahamas).

Macrurus (Coelorhynchus) carminatus Brauer, Deutsche Tiefsee Exped. Val-

divia, vol. 15, p. 388, 1906 (reference).

Coelorhynchus carminatus Goode and Bean, Oceanic Ichth., p. 398, fig. 336, 1895 (Gulf Stream, West Indies, Gulf of Mexico, 49 to 616 fathoms). —Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p. 2588, 1898 (copied). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 426, 1920 (diagnosis in key).

Depth 6 1/8 to 6 2/3; head 4 to 4 3/5, width 1 3/4 to 2 1/4. Snout to eye 2 3/5 to 2 4/5 in head; eye 4 1/3 to 4 1/2, 1 1/2 to 1 3/4 in snout, 1 in interorbital to 1 1/8 times interorbital; orbit 3 1/5 to 3 2/5 in head, 1 1/8 to 1 1/3 in snout, 1 1/4 times interorbital; maxillary reaches 2/5 to 3/4 in eye, length from front end 3 1/3 to 3 1/2 in head; mandibular barbel 3 1/2 to 3 3/4 in eye; teeth in villiform bands in jaws, in 4 to 6 irregular rows; interorbital 4 1/5 to 4 1/3, low, anteriorly and with slight convexity. Gill rakers 0 + 8, short low points, 1/3 of gill filaments, which 2 1/2 in eye.

Scales 100 to 110 in lateral line; 6 or 7 above, 13 below, 8 predorsal forward to occiput, which at first third between hind eye edge and first dorsal origin. Scales with 10 to 12 parallel apical series of spinules, last of which extend little behind hind scale edge; circuli moderate, complete.

D. II, 9—80 to 90, second simple ray entire, slender, first branched ray 1 2/3 to 1 7/8 in head; interdorsal space 2 1/6 to 2 4/5; A. 76 to 100, fin height 3 to 4; pectoral rays I, 12, fin 1 9/10 to 2 1/8 in head; ventral rays I, 6, fin 2 1/8 to 2 1/5.

Largely uniform brown above, lower surfaces little paler. Iris pale, evidently whitish. Inside mouth grayish. Inside gill opening dark brown. Fins all brown, ventral membranes blackish brown. Belly dark brown.

U. S. N. M., No. 31875. Lat. 39°58'N., long 70°37'W.

In 125 fathoms. October 4, 1882. Albatross Collection (D.1151). Length 125 mm.

U. S. N. M., No. 43625. Lat. 28°45'N., long. 96°26'W.

In fathoms. March 14, 1885. Albatross Collection (D.2398). Length 237 to 240 mm. 2 examples.

U. S. N. M., No. 45694.

In fathoms. September 13, 1890. Fish Hawk Collection (879). Length 258 mm.

U. S. N. M., No. 45696. Lat. 36°41'37"N., long. 74°42'15"W.

June 4, 1885.

Albatross Collection (D.2424). Length 165 mm.

U. S. N. M., No. 45699. Lat. 11°43'N., long. 69°9'30" In 208 fathoms. February 18, 1884. Albatross Collection (D.2125). Length 183 mm.

U. S. N. M., No. 45700. Lat. 28°36'N., long. 85°33'30"W. March 14, 1885. Albatross Collection (D.2402). Length 53 to 55 mm. 2 examples.

Caelorhinchus caribbaeus (Goode and Bean)

Macrurus caribbaeus Goode and Bean, Proc. U. S. Nat. Mus., vol. 8, p. 594, 1885 (type locality : lat. 29°7'30"N., long. 88°8'W., in 210 fathoms; lat. 9°to 29°N., long 76° to 86°W., in 142 to 210 fathoms). —Günther, Rep. Voy. Challenger, vol. 22, p. 124, 1887 (note).

Macrurus (Coelorhynchus) caribbaeus Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 388, 1906 (reference).

Coelorhynchus caribbaeus Goode and Bean, Oceanic Ichth., p. 401, pl. , fig. 338 (type; same materials as above). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). —Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p. 2589, 1898 (copied). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 426, 1920 (diagnosis in key).

Depth 7 to 7 1/2; head 4 1/5 to 4 1/3, width 1 4/5 to 2. Snout to eye 2 1/3 to 2 2/5 in head; eye 4 to 4 1/3, 1 4/5 to 1 7/8 in snout, 1 1/10 to 1 1/5 times interorbital; orbit 3 1/8 to 3 1/3 in head, 1 1/8 to 1 1/5 in snout, 1 1/4 to 1 1/3 times interorbital; maxillary reaches 1/3 to 1/2 in eye, length to front edge 3 1/3 to 3 1/2 in head; mandibular barbel 2 1/2 to 2 2/3 in eye; teeth in villiform bands in jaws, in 4 or 5 irregular series transversly; interorbital 4 3/4 to 5 1/5 in head, low and

nearly level forward. Gill rakers 0 + 8 low spinescent tubercles on second arch, 1/3 of gill filaments, which 3 1/2 in eye.

Scales 124 to 126 in lateral line; 6 above, 15 or 16 below, 14 predorsal forward to occiput which about first fourth between hind eye edge and first dorsal origin. Scales with 11 or 12 irregular horizontal apical rows of spinules, last of which not extended beyond hind edge of scale; circuli moderate, not extended apically. Ventral fossa very large, 1 1/3 in eye.

D. II, 9—105 to 110, second simple ray slender, entire, first branched ray 1 3/5 to 2? in head; interdorsal space 3 2/3 to 4; A. 96 to 110, fin height 3? to 4; [illegible] pectoral rays I, 16, fin 2 1/4 to 2 3/5; ventral rays I, 6, fin 2 2/3 to 3.

Brown above, sides more or less with silvered tints. Iris gray to whitish. Head all more or less paler than body. Chin and branchiostegal region blackish brown. Inside mouth pale. Inside gill opening blackish. Breast and belly dusky, also dark brown tints high as pectoral base behind gill opening.

U. S. N. M., No. 37333. Lat. 29°7'30"N., long 88°08'

In 210 fathoms. 1886.

Albatross Collection (2377). Length 285 mm. Type of Macrurus caribbaeus.

U. S. N. M., No. 44668. Lat. 29° ~~7' 30"N.,~~ 7' 30"N., long. 88°8'.

In 210 fathoms. February 11, 1885.

Albatross Collection (2377). Length 235 to 258 mm. Four paratypes.

U. S. N. M., No. 53048.

Albatross Collection (2400). Length 190 to 242 mm. 2 examples.

U. S. N. M., No. 74322.

Albatross Collection (2143). Length 195 mm.

U. S. N. M., 5 examples.

Albatross Collection (2401). Length 160 to 210 mm.

Caelorhinchus carnifer Gilbert and Hubbs

Coelorhynchus carnifer Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 490, fig. 19, 1920 (type locality : Off southern Luzon, in 236 fathoms).

Coelorhynchus platorhynchus form alpha (part) Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 134, 1912 (not fig. 9) (specimen from Albatross Station 5111 only).

Depth 7; head 3 3/4, width 2 1/8. Snout to eye 2 1/4 in head; eye 4 4/5, 1 1/5 in interorbital; orbit 3 2/3 in head, 1 1/2 in snout, little greater than interorbital; maxillary reaches opposite 3/4 in eye, length from front end 4 1/4 in head; mandibular barbel 2 2/3 in eye; teeth villiform, in bands in jaws of 5 or 6 irregular rows; interorbital 4 1/2 in head, low, nearly level forward. Gill rakers 0 + 8 low short knobs on second arch, 1/4 of gill filaments, which 2 1/2 in eye.

Scales 87 in lateral line; 6 above, 13 below, 8 predorsal forward to occiput and 30 more forward to snout tip. Scales with 7 to 10 radiating spinuliferous apical keels, last spinules extending beyond scale edge; circuli moderate, fine complete.

D. II, 7__70?, second simple ray slender, entire, 2 in head; interdorsal space 2 1/4; A. 79, fin height 3 7/8; pectoral rays I, 15, fin 2 1/10 in head; ventral rays I, 6, fin 2 2/5.

Dark brown. Under surface of head brownish, with small to minute irregular dark or blackish brown spots. Inside mouth dark.

Inside gill opening blackish brown. Iris dark gray. Fins more or less dusky. Belly with dark gray tints.

Philippines. Only known from the type.

U. S. N. M., No. 78223. Sombrero Island, S. 41°E., 4.50 miles (lat. 13°45'15"N., long. 120°46'30"E.), China Sea off southern Luzon. In 236 fathoms. January 16, 1908. Albatross Collection (D.5111). Length 311 mm. Type.

Caelorhinchus chilensis Gilbert and Thompson

Coelorhynchus chilensis (Gilbert and Thompson) Thompson, Proc. U. S. Nat. Mus., vol. 50, p. 473, pl. 6, fig. 1, 1916 (type locality: long. 38°8'S., long. 75°53'"., off Lota; Chile, in 677 fathoms). — Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 429, 1920 (Diagnosis in key).

Depth 6 1/5 to 6 1/4; head 3 1/5 to 3 4/5, width 1 2/3 to 2. Snout to eye 2 1/2 to 2 3/5 in head; eye 4 1/4 to 4 3/4, 1 3/5 to 1 2/3 in snout, 1 1/10 to 1 1/5 in interorbital; orbit 3 to 3 1/5 in head, 1 to 1 1/8 in snout, 1 1/5 to 1 1/4 times interorbital; maxillary reaches 1/3 to 1/2 in eye, length from front end 3 1/5 to 3 3/4 in head; mandibular barbel 2 2/3 in eye; teeth in villiform bands in jaws of 5 or 6 irregular rows; interorbital 4 to 4 1/3 in head, low, broadly depressed concavely. Gill Rakers 1 + 7, low spinescent tubercles, 1/4 of gill filaments, which 1/3 in iris.

Scales (pockets) 84 in lateral line; 8? above, 10? below, 11 predorsal forward to occiput. Scales with 4 to 6 radiating apical spinuliferous keels, spinuels not passing hind edge of scale; circuli moderate, complete.

D. II, 8 or II, 9__70? to 96, second simple ray slender, smooth, nearly 1/2 of head; interdorsal space 4 1/3; A. 99, fin height (rays broken) apparently less than eye; pectoral rays I, 18, fin 2 1/8 in head; ventral rays I, 6, fin 2 3/4.

Brown, apparently dark. Iris gray. Inside mouth and gill opening

blackish brown. Fins brown. Belly Gray.

U. S. N. M., No. 76861. Lat. 38°8'N., long. 75°53'W.

Albatross Collection (a791). Length 294 mm.

U. S. N. M., No. 76889. Lat. 38°8'N., long. 75°53'W.

Albatross Collection (2791). Length 165? to 213 mm. 11 examples. Paratypes.

U. S. N. M., No. 76890. Lat. 38°8'N., long 75°53'W.

Albatross Collection (2791). Length 204 to 235? mm. 5 examples. Paratypes.

U. S. N. M., No. 77499. Lat. 38°8'N., long 75°53'W.

Albatross Collection (2791). Length 110? to 200? mm. 11 examples, very poorly preserved and broken.

Caelorhinchus cingulatus Gilbert and Hubbs

Coelorhynchus cingulatus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 480, fig. 15, 1920 (type locality: China Sea near Formosa, in 230 fathoms).

Depth 7 1/3 to 7 2/3; head 3 1/3 to 3 2/5, width 2 1/8 to 2 1/4. Snout 2 1/6 to 2 1/5 in head; eye 4 1/10 to 4 3/5, 1 4/5 to 2 1/6 in snout, 1 1/10 to 1 1/6 times interorbital; maxillary reaches 2/3 to 3/4 in eye, length from front end 4 1/4 to 4 2/5 in head; mandibular barbel 2 2/5 to 4 in eye; teeth in villiform bands in jaws, of 5 or 6 irregular rows; interorbital 4 3/4 to 4 4/5 in head, low, broadly depressed. Gill rakers 0 + 4 low tubercles on second arch, 1/4 of gill filaments, which 1/4 of eye.

Scales 65 in lateral line to end of broken tail; 6 above, 12 below, 8 to 11 forward to occiput and 32 more forward to front of snout. Scales with 5 to 7 feeble radiating apical spinuliferous keels, last spinules only slightly extended beyond hind scale edge, circuli moderate, complete.

D. II, 8--64, second simple ray entire, pungent, fin height (broken) 2 1/2? in head; interdorsal space 7 to 10; A. 62, fin height 4 4/5; pectoral rays I, 16, fin 2 1/2 to 2 7/8 in head; ventral rays I, 6, fin 2 1/3 to 2 2/5.

Brown above, sides and below paler to whitish, especially silvery white over abdominal cavity. Gray tin over belly below. Neutral black streak from ventral fossa on breast to vent. Dark brown preocular and postocular bar and lower one extends to preopercle angle. Small dark brown spot on occiput. As seen from above 5 variable dorsal dark brown blotches, with paler less conspicuous one in each interval, which may form from one to several dark brown blotches. Fins more or less brownish. Iris grayish. Inside mouth pale. Inside gill opening dusky.

U. S. N. M., No. 78221. Lat. 21°36'N., long 117°27'E., China Sea vicinity of Formosa. In 230 fathoms. November 5, 1908. Albatross Collection (D.5317). Length 133 mm to end of broken tail. Type.

U. S. N. M., No. 78233. Lat. 21°36'N., longl 117°27'E. In 230 fathoms. November 5, 1908. Albatross Collection (D.5317). Length 145 mm.

Caelorhinchus caelorhynchus (Risso)

Lepidoleprus coelorhynchus Risso, Ichth. Nice, p. 200, pl. 7, fig. 22, 1810 (type locality : Nice). —Cuvier, Regne Animal, vol. 2, p. 218, 1817 (reference); ed. 2, vol. 2, p. 337, 1829 (reference).

Macrourus coelorhynchus Costa, Fauna Napoli, Pesc., Malacott. sottobranch; pl. 39, figs 3-7, 1829- 34. —Bonaparte, Fauna Italica, Pesc., pt. 1, fasc. 30, no pagination, pl., fig. 1, 1841 (Italy). —Canestrini, Fauna Italica, pt. 3, p. 159, 1874 (Liguria; Sicily).

Macrourus caelorhynchus Noreau, Poiss. France, vol. 3, p. 278, fig. 181, 1881 (Nice; Cette).

Macrurus coelorhynchus Kaup, Arch. Naturg., vol. 24, pt. 1, p. 91, 1858 1858 (reference). —Günther, Cat. Fish. Brit. Mus., vol. 4, p. 392, 1862 (copied); Rep. Voy. Challenger, vol. 22, p. 128, 1887. (Mediterranean; Madeira). —Vaillant, Exped. Sci. Travailleur et Talisman, Poiss., p. 247, pl. 21, figs. 3a-b (scales), 1888 (Soudan Coast, Banc d' Arguin, Cape Verde Islands, Azores, 140 to 580 meters). —Carus, Prodr. Ichth. Medit., vol. 2, p. 582, 1893 (Compiled).

Macrurus (Coelorhynchus) coelorhynchus Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 388, 1906 (reference); Murray and Hjort, The Depths of the Ocean, p. 397, 1912.

Oxycephas coelorhinchus Swainson, Nat. Hist. Animals, vol. 2, p. 261, 1839 (reference).

Coelorhynchus coelorhynchus Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 425, 1920 (diagnosis in key).

Macrourus mysticetus Bonaparte, Fauna Italica, Pesc., pt. 1, fasc. 30, 1841, pl., fig. 1, (type locality : Italy).

Macrourus atlanticus Lowe, Proc. Zool. Soc. London, 1839, p. 88 (type locality : Madeira).

[illegible].

Macrurus atlanticus Günther, Cat. Fish. Brit. Mus., vol. 4, p. 392, 1862 (Madeira).

Coelorhynchus atlanticus Goode and Bean, Oceanic Ichth., p. 397, 1895 (copied).

Macrurus rupestris (not Bloch) Lowe, Trans. Zool. Soc. London, vol. 2, p. 190, 1837 (1841) Madeira).

? Krohnius filamentosus Cocco, Intorn. Pesc. Messina (Lettere A. Cocco A. Krohn), p. 15, 144, 1844 (type locality : Messina, Italy). Emery, Atti Soc. Ital. Sci. Nat., vol. 21, p. 37.

Depth 6 1/2 to 6 2/3; head 4 2/3 to 4 3/4, width 1 7/8 to 8. Snout eye 2 3/5 to 2 3/4 in head; eye 3 2/5 to 4 2/3, 1 1/4 to 1 7/8 in snout, 1 1/4 times interorbital to 1 1/4 in interorbital with age; orbit 3 to 3 2/5 in head, 1 to 1 1/4 in snout, 1 1/4 to 1 1/2 times interorbital; preoral length 2 2/5 to 3 1/2 in head; mandibular barbel 3 1/2 to 3 3/5 in orbit; teeth minute, in villiform bands in jaws, 4 or 5 irregular rows transversely; interorbital 4 1/5 to 4 1/4 in head, low, slightly convex. Gill rakers 0+8, low spinuliferous tubercles on second arch, 1/2 of gill filaments, which 1/3 of eye.

Scales 110 in lateral line; 7 above, 14 below, 14 predorsal forward till opposite hind edge of orbit. Scales with 12 or 13 apical parallel spinuliferous keels, last spinules extending behind scale edge; circuli moderate, complete.

D. II, 7 or II, 8—62 to 90, second simple ray slender, entire, length 1 2/3 to 1 3/4 in head; interdorsal space 2 1/3 to 2 2/3; A. 70 to 90, fin height 3 1/2 to 4 1/5; pectoral rays I, 19, fin 2 to 2 1/10 in head; ventral I, 6, fin 2 1/5 to 2 2/3.

Brown, becoming paler on under surface of head and abdomen, though latter underneath and breast tinged with neutral gray. Iris gray. Inside mouth pale. Inside gill opening livid slate. Fins brown, though anal whitish, sprinkled with dusky dots terminally.

Eastern Atlantic, Mediterranean.

U. S. N. M., No. 8571. Mediterranean. C. L. Bonaparte Collection. Academy of Natural Sciences of Philadelphia. Length 188 to 195 mm. 2 examples.

U. S. N. M., No. 42095.
Paris Museum (86+137). Lenght 186 mm.

U. S. N. M., No. 48358. Italy.
S. E. Meek. Length 200 mm.

U. S. N. M., 6 examples.
Albatross Collection (D.2544). Length 213 to 315 mm.

U. S. N. M., 4 examples
Albatross Collection (D.2589). Length 188 to 248 mm.

Caelorhinchus commutabilis Smith and Radcliffe

Coelorhynchus commutabilis Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 128, pl. 29, fig. 2, 1912 (type locality : Palawan Passage, in 375 fathoms; Northern Mindanao; Jolo; off northern Luzon). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p.(431) 507, figs. 27 to 29, 1920 (vicinity of Jolo Island; Palawan Passage; off eastern Luzon; near Sibuko Bay, Borneo; 260 to 375 fathoms). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 51, 1929 (compiled).

Coelorhynchus commutabilis form alpha Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 130, text fig. 3 (top of head), 1912 (Mabul Island, Borneo, 260 fathoms).

Coelorhynchus commutabilis form delta Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 132, text fig. 6 (top of head), 1912 (vicinity of Jolo, 318 fathoms).

Coelorhynchus commutabilis form eta Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 132, text fig. 7 (top of head), 1912 (off northern Luzon, 224 fathoms).

Depth 6 1/3; head 3 2/5, width 2 1/3. Snout to eye 2 1/8 to 2 1/3 in head; eye 5 1/4 to 5 3/4, 2 1/4 to 2 3/4 in snout, 1 1/4 to 1 1/3 in interorbital; orbit 4 in head, 1 2/3 in snout, little greater than 1 in interorbital; maxillary reaches opposite hind eye edge, length 3 1/5 to 3 1/2 in head; mandibular barbel 2 to 2 2/3 in eye; teeth in villiform bands in jaws of 6 or 7 irregular rows; interorbital 4 to 4 2/5 in head, low, nearly level. Gill rakers 0+6 or 7, low tubercles on second arch, about 1/4 of gill filaments, which 1/2 of eye.

Scales 82 in lateral line to pseudocaudal base; 7 above, 10 or 11 below, 11 predorsal to occiput and about 50 more forward nearly to snout tip. Scales with 3 to 7 radiating spinuliferous apical ridges, last spinules extending beyond hind edges of scales; circuli moderate complete.

D. II, 8 or II, 9--80, second simple ray slender, entire, 2 2/5 in head; interdorsal space 3 1/4 to 4; A. 78, fin height 5 1/8; pseudocaudal small; pectoral rays I, 17, fin 2 4/5 in head; ventral rays I, 6, fin 3.

Brown, paler on under surfaces. Lower surface of head especially paler than rest of head. Iris gray. Inside mouth dusky and in gill opening blackish. Fins brownish.

East Indies, Philippines.

U. S. N. M., No. 72945. Mabul Island (NW.) N.22°W., 4.3 miles (lat. 4°10'50"N., long. 118°38'08"E.), vicinity Sibuko Bay, Borneo. In 310 fathoms. September 29, 1909. Albatross Collection (D.5590). Length 250 to 295 mm. Two examples.

Caelorhinchus denticulatus Regan

Coelorhynchus denticulatus Regan, Ann. Mag. Nat. Hist., ser. 9, vol. 7, p. 415, 1921 (type locality : Off Natal). Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 341, June 1925 (compiled).

Coelorhynchus natalensis Fowler, Ann. Natal Mus., vol. 2, p. 198, fig. 3, 1925 (type locality : off Bluff South East, Natal, 35 fathoms).

Caelorhinchus dorsalis Gilbert and Hubbs

Coelorhynchus dorsalis Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 469, fig. 13, 1920 (type locality : off Northern Luzon, in 212 fathoms).

Depth 6 7/8 to 8 7/8; head 3 1/4 to 4, width 2 1/4. Snout to eye 2 1/6 to 2 1/4 in head; eye 4 2/5 to 5, 2 to 2 1/6 in snout, 1 to 1 1/8 times interorbital; orbit 3 1/2 to 3 2/3 in head, 1 2/3 to 1 3/4 in snout, 1 1/4 times interorbital; maxillary reaches 1/2 to 3/5 in eye, length from front end 3 3/4 to 4 in head; mandibular barbel 2 1/5 to 2 1/2 in eye; teeth in villiform bands in jaws, of 4 or 5 irregular rows; interorbital 5 to 5 1/5 in head, low and nearly level forward. Gill rakers 0+6, low spiniferous tubercles on second arch, 1/3 of gill filaments, which 1/3 of eye.

Scales 110? in lateral line; 6 or 7 above, 12 below, 12 predorsal forward to occiput and 24 more forward to end of snout. Scales with 8 to 11 parallel spinuliferous apical keels, mostly not or only very slightly extended beyond scale edge; circuli moderate, complete.

D. II, 8—90, second simple ray slender, entire, ends in filament which 1 1/4 to 1 1/3 in head; interdorsal space 3 1/2 to 3 3/5; A. 95, fin height 3 3/5 to 4 1/5; pseudocaudal very small; pectoral rays I, 16, fin 1 7/8 to 2 in head; ventral rays I, 6, fin 2 to 2 1/8.

Light brown, with slight traces of silvery white tints on sides. Head pale, nearly whitish below. Belly and breast with grayish tint. Iris whitish. Inside mouth pale dusky. Fins pale.

Philippines.

U. S. N. M., No. 78219. Font Island (W.), N.28°E., 24. 25 miles (lat.18°33'N., long. 121°37'30"E.), off northern Luzon. In 212 fathoms. November 19, 1908. Albatross Collection (D.5329). Length 200 mm. Type.

U. S. N. M., No. 78232. Hermanos Island (N.), N.69°E., 8 miles (lat. 18°32'30"N., long 122°01'E.), off Northern Luzon. In 230 fathoms. November 12, 1908. Length 158 mm. Paratype.

Caelorhinchus doryssus Gilbert

Coelorhynchus doryssus Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 875, pl. 94, 1903 (1905) (type locality : Kaiwi Channel; and off Oahu, in 9 to 44 fathoms; Kauai; Oahu, 192 to 449 fathoms). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, pt. 7, p. (432) 515 (name). —Fowler, Mem. Bishop Mus., vol. 10, p. 86, 1928 (type; Hawaiian Islands).

Macrurus (Coelorhynchus) doryssus Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 388, 1906 (reference).

Depth 6 1/5 to 8 3/5; head 2 9/10 to 3 2/3, width 2. Snout to eye 2 1/8 to 2 1/5 in head; eye 4 1/5 to 7, 2 to 3 in snout, 1 1/8 to 1 1/4 in interorbital; orbit 3 7/8 to 4 7/8 in head, 1 4/5 to 2 1/8 in snout, 1 in interorbital; maxillary reaches opposite hind eye edge, length from front end 4 in head; mandibular barbel 1/2 of eye; teeth in villiform bands in jaws, of 6 or 7 iregular rows; interorbital 3 1/8 to 5 in head; low and nearly level forward. Gill rakers 0+6 low spiniferous tubercles on second arch, 1/4 of gill filaments, which 2 1/2 in eye.

Scales 78 in lateral line; 6 above, 14 below, 7 predorsal forward to occiput. Scales with 1 to 8 parallel apical spinuliferous ridges, median largest and last extend little beyond hind scale edge; circuli moderately fine, complete.

D. II, 8__75, second simple ray slender and entire, first branched ray 2 3/5 to 3 1/8 in head; interdorsal space equals eye; A. 71, fin height 8 in head; pseudocaudal 4/5 of eye; pectoral rays I, 16, fin 2 to 3 1/3 in head; ventral rays I, 6, fin 2 1/8 to 4 in head.

Brown, head little paler. Iris grayish. Under surface of head pale, grayish around gill opening. Inside mouth pale. Inside gill opening neutral black. Belly little grayish. Fins dusky or dark brown.

Hawaiian Islands.

U. S. N. M., No. 51616.

Albatross Collection (D.).

Length 345 mm. Type.

U. S. N. M., No. 51661.

Albatross Collection (D.).

Length 40 to 88 mm. 3 examples.

Caelorhinchus fasciatus (Günther)

Macrurus fasciatus Günther, Ann. Mag. Nat. Hist., ser. 5, vol. 2, p. 24, July 1, 1878 (type locality : western coast of southern extremity of South America, in 120 to 245 fathoms); Rep. Voy. Challenger, vol. 22, p. 129, pl. 28, fig. A, 1887 (types). —Gilchrist, Mar. Invest. South Africa, vol. 3, p. 135, 1905 (eggs; off Cape Point).

Macrurus (Coelorhynchus) fasciatus Brauer, Deutsch. Tiefsee Exped Valdivia, vol. 15, p. 259 (388), 1906 (lat. 33°41'2"S., long. 18°0'3"E., in 178 meters, off South Africa; lat. 35°16'S., long. 22°26'7"E., in 155 fathoms).

Coelorhynchus fasciatus Goode and Bean, Oceanic Ichth., p. 402, 1895 (copied). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). — McCulloch, Records Austral. Mus., vol. 6, pt. 5, p. 348, 1907 (Tasman Sea). —Thompson, Proc. U. S. Nat. Mus., vol. 50, p. 473, 1916 (between Hanover Island and mainland; between Wellington Island and mainland). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 426, 1920 (diagnosis in key). — Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 340, June 1925 (Cape Point and south slope Agulhas Bank, 89 to 250 fathoms). —McCulloch, Fishes of New South Wales, ed. 2, p. 32, pl. 11, fig. 115 b, 1926.

Coelorhynchus (Paramacrurus) fasciatus McCulloch, Biol. Res. Endeavour, vol. 5, pt. 4, p. 177, June 8, 1926 (south east Gabo Island; eastern edge Bass Strait; north east of Babel Island; 35 miles south east Bruni Island; south east from, south and south west from Eucla; 70 to 450 fathoms).

Coelorhinchus fasciatus McCulloch, Austral. Mus. Mem., No. 5, pt. 1, p. 126, July 29, 1929 (reference).

Depth 5 3/4 to 6 1/5; head 4 1/4 to 4 1/3, width 1 3/5 to 1 4/5. Snout to eye 3 2/5 to 3 2/3 in head; eye 2 1/2 to 2 3/4, 1/8 to 1/5 times greater than snout, 1/2 times greater than interorbital; orbit 2 1/4 to 2 3/5 in head, 1/3 times greater than snout, 1/2 to 3/5 times greater than interorbital; maxillary reaches 2/5 to 1/2 in eye, length from front end 3 2/3 in head; mandibular barbel 3 1/5 in eye; villiform teeth in bands in jaws, in 5 or 6 irregular rows; interorbital 3 7/8 to 5 4/5 in head, low, nearly level or only slightly concave. Gill rakers 0+6 low spinescent tubercles on second arch, 1/4 of gill filements, which 1/4 of eye.

Scales 110 in lateral line; 4 above, 8 below, 9 predorsal forward to occiput. Scales with 11 or 12 parallel or only slightly radiating apical spinuliferous keels, last spinules projecting beyond scale edge; circuli moderate, complete.

D. II, 9__70, second simple ray entire, slender, 1/2 to 1/3? in head; interdorsal space 5 to 5 1/5; A. 86, fin height 4 to 4 1/5 in head; pectoral rays I, 16, fin 1 4/5 to 2; ventral rays I, 6, fin 1 3/4 to 1 7/8.

Brown, usually paler on snout and muzzle. Iris pale to gray. Inside mouth and gill opening dark to blackish brown. Fins brownish, paired ones paler.

Off southern South America, South Africa, Tasman Sea. The dark areas or marblings shown in Günther's figures are now hardly evident in any of my examples.

U. S. N. M., No. 77289.

Albatross Collection (D.2783). Length 215 to 295 mm. 2 examples.

U. S. N. M., No. 77290.

Albatross Collection (D.2784). Length 205 to 245 mm. 4 examples

Caelorhinchus flabellispinnis (Alcock)

Macrurus flabellispinnis Alcock, Journ. Asiatic Soc. Bengal, vol. 63, pt. 2, p. 123, 1894 (type locality : Laccadive Sea, in 719 fathoms).

Macrurus (Coelorhynchus) flabellispinis Alcock, Journ. Asiatic Soc. Bengal, vol. 63, pt. 2, p. 126, 1894 (diagnosis in key); Cat Deep Sea Fishes Indian Mu., p. 107, 1899 (Arabian Sea, 719 fathoms). — Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 258, 1906 (Simons Bay, South Africa, 70 meters; west coast of Sumatra, 470 to 750 meters; north east coast of Africa, 628 to 741 meters).

Macrurus flabellispinis Alcock, Illustrat. Zool. Investigator, pt. 3, pl. 16, figs. 2 to 2a, 1895 (type). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 388, 1899 (reference).

Coelorhynchus flabellispinis Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (name); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (430) 497, 1920 (reference). —Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 341, June 1925 (reference).

Caelorhinchus gladius Gilbert and Cramer

Coelorhynchus gladius Gilbert and Cramer, Proc. U. S. Nat. Mus., vol. 19, p. 421, pl. 41, fig. 3, 1897 (type locality : Hawaiian Islands, in 295 fathoms). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). —Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 673, 1903 (1905) (off oahu and Kauai, 192 to 352 fathoms). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 514, 1920 (measurements of types). —Fowler, Mem. Bishop Mus., vol. 10, p. 86, 1928 (compiled).

Macrurus (Coelorhynchus) gladius Brauer, Deutsch. Tiefsee Exped. Valdivia, VOL. 15, P. 388, 1906 (reference).

Depth 9 1/2; head 3 3/4, width 2 2/5. Snout to eye 1 4/5 in head; eye 6 1/3, 3 3/5 in snout, 1 1/4 in interorbital; orbit 4 3/4 in head, 2 1/2 in snout equals interorbital; maxillary reaches 3/4 in eye, length 4 4/5 in head; mandibular barbel 1/2 of eye; minute villiform teeth in bands in jaws, of 5 irregular rows; interorbital 5 1/5 in head, low, level. Gill rakers 0+7 low spiniferous tubercles on second arch, 1/4 of gill filaments, which 2 3/4 in eye.

Scales 100? in lateral line; 6 above, 12? below, 10 forward to occiput which slightly before upper hind or vertical edge of preopercle. Scales with 7 parallel ridges of spinules, last of which extend beyond hind scale edge; circuli rather coarse, complete.

D. II, 10__87?, second simple ray slender, entire, 2 1/8 in head; interdorsal space 1/2 of eye; A. 85?, rays slender, fin height 5 2/5 in head; pectoral rays I, 17, fin 2 1/3 in head; ventral rays I, 6, fin 2 4/5.

Body brownish, head and under surfaces paler or very light brownish. Iris gray. Inside mouth and gill opening pale. Belly grayish. Fins pale, first dorsal dusky to blackish terminally.

Hawaiian Islands.

U. S. N. M., No. 47706. Lat. 21°12'N., long. 157°49'W. In 295 fathoms. Length 165 mm. Type. Also very small specimen, 53 mm long, with same data. It differs in the broad snout but without the long point of the type.

Caelorhinchus innotabilis McCulloch

Coelorhynchus innotabilis McCulloch, Records Austral. Mus., vol. 6, No. 5, p. 348, pl. 63, figs. 2 to 2a, July 18, 1907 (type locality: 35 miles east of Sydney, New South Wales, in 800 fathoms). —

Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (429) 429 (diagnosis in key). —McCulloch, Fishes of New South Wales, ed. 2, p. 32, pl. 11, fig. 115a, 1926.

Coelorhynchus (Paramacrurus) innotabilis McCulloch, Biol. Res. Endeavour, vol. 5, pt. 4, p. 180, June 8, 1926 (eastward of Bass Strait). —

Whitley, Fishes New South Wales, McCulloch, ed. 2, 1927 (p. 3 unnumbered) (reference).

Coelorhinchus innotabilis McCulloch, Austral. Mus. Mem., No. 5, pt. 1, p. 126, June 29, 1929 (reference).

Caelorhinchus japonicus (Schlegel)

Macrourus japonicus Schlegel, Fauna Japonica, Poiss,, Pts. 10 to 14, p. 256, pl. 112, figs. a to b, 1846 (type locality : Bays provinces Oomura and Simabara).

Macrurus japonicus Günther, Rep. Voy. Challenger, vol. 22, p. 127, pl. 29, fig. C (scale), 1887 (south of Japan, 345 fathoms). —Steindachner Döderlein, Denks. Akad. Wiss. Wien, Math. -nat. Cl., vol. 53, p. 283, 1887 (Japan). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference).

Macrurus (Coelorhynchus) japonicus Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 388, 1906 (reference).

Oxycephas japonicus Kaup, Archiv Naturg., vol. 24, pt. 1, p. 91, 1858, (reference).

Coelorhynchus japonicus Jordan and Snyder, Annot, Zool. Japon., vol. 3, p. 120, 1901 (Yokohama, Nagasaki, Umura, Shimabara). —Jordan and Starks, Bull. U. S. Fish Comm., vol. 22, p. 617, 1902 (1904) (Misaki; Nagasaki). —Franz, Abhandl. Kon. Bayer, Akad. Wiss., vol. 4, Suppl. Band 1, p. 26, 1910 (Yokohama; Aburatsubo). —Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, pt. 1, p. 418, 1913 (Tokyo to

Nagasaki). —Jordan and Thompson, Mem. Carnegie Mus., vol. 6, No. 4, p. 306, Sep. 1914 (Misaki). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (145) 178, 1916 (east central Hondo; Suruga Gulf; 197 to 297 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 431, 1920 (diagnosis in key).

Depth 6 2/5 to 8; head 3 to 3 1/3, width 2 to 2 1/3. Snout to eye 2 to 2 1/10 in head; eye 5 1/2 to 6 4/5, 2 4/5 to 3 1/5 in snout, 1 1/5 to 1 1/4 in interorbital; orbit 4 1/2 in head, 1 7/8 in snout, greater than interorbital; maxillary reaches 4/5 in eye, length from front end 3 7/8 to 4 1/3 in head; mandibular barbel 1 1/3 to 1 1/2 in eye; villiform teeth in bands in jaws, of 7 or 8 irregular rows; interorbital 5 to 5 1/5 in head, low, nearly level, with slight median concavity. Gill rakers 0 + 6 low spiniferous tubercles on second arch, 1/4 of gill filaments, which 2 1/4 in eye.

Scales 146 in lateral line to pseudocaudal; 6 or 7 above, 12 or 13 below, 11 or 12 predorsal forward to occiput. Scales with 3 to 6 radiating spinuliferous apical ridges, last spinules projecting beyond hind edge of scale; circuli moderate, complete.

D. II, 9 or II, 10__135?, second simple ray slender, entire, length 2 3/4 to 3 in head; interdorsal space ~~equales~~ equals eye; A. 120?, fin height 4 1/3 in head; pseudocaudal variably very small, large as eye; pectoral rays I, 17, fin 2 2/3 to 2 4/5 in head; ventral rays I, 6, fin 2 2/3 to 3 1/2.

Brown, muzzle and snout little paler. Iris gray. Inside mouth and gill opening dusky to neutral black. Fins all more or less dark brown.

Japan.

U. S. N. M., No. 51437.

Misaki, Japan. D. S. Jordan and J. O. Snyder. Length 320 (No. 1696) and 448 (No. 1682) mm.

U. S. N. M., No. 77200.

Albatross Collection (D.4968). Length 349 mm.

U. S. N. M., No. 77201.

Albatross Collection (D.4967). Length 310 mm.

U. S. N. M., No. 77202.

Japan.

Albatross Collection (D.5062). Length 166 mm.

Caelorhinchus jordani Smith and Pope

Coelorhynchus jordani Smith and Pope, Proc. U. S. Nat. Mus., vol. 31, p. 494, fig. 11, 1906 (type locality : Kagoshima, Japan). Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, pt. 1, p. 419, (fig. 389 copied) 1913. Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (144) 191, 1916 (Kagoshima; Eastern Sea; Kagoshima Gulf; 115 to 207 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 427, 1920 (diagnosis in key).

Depth 6 1/2 to 8; head 4 1/3 to 4 1/2, width 2 to 2 3/5. Snout to eye 2 1/2 to 2 3/5 in head; eye 3 2/3 to 4, 1 1/4 to 1 3/5 in snout, slightly to 1/4 greater than interorbital; orbit 2 7/8 to 3 1/10 in head, 1 to 1 1/8 in snout, nearly 1/3 to 2/5 greater than interorbital; maxillary reaches about 2/3 to 3/4 in eye, length 3 1/2 to 3 7/8 in head; mandibular barbel 2 in eye; bands of villiform teeth in jaws, of 5 or 6 irregular rows; interorbital 3 3/4 to 4 3/4 in head, low to nearly level anteriorly, with slender median depression. Gill rakers 0+7 low spiniferour tubercles on second arch, 1/4 of gill filaments, which 1/3 of orbit.

Scales 100? in lateral line; 6 above, 12 below, 11 forward to occiput. Scales with 8 to 14 nearly parallel series of spinuliferous ridges, last spinules projecting over hind edge of scale; circuli moderate, complete.

D. II, 9__90, second simple ray slender, entire, 1 1/4 to 1 1/3 in head; interdorsal space 2 4/5 to 4 7/8; A. 90, fin height 3 2/5 to 3 4/5; pectoral rays I, 16, fin 1 3/4 to 1 4/5 in head; ventral fin I, 6, fin 2 1/3 to 2 2/5.

Brown, litlle paler below. Under surface of head light or very pale. Throat, breast and chest with rather dark neutral gray shades. Eye slate. Inside mouth pale, in gill opening blackish. Fins brownish.

Japan.

U. S. N. M., No. 55609. Kagoshima, Japan. June 16, 1903. Dr. H. M. Smith. Length 171 mm. Type.

U. S. N. M., No. 77197. Kagoshima.

Albatross Collection (D.). Length 125 to 230 mm. 5 examples.

U. S. N. M., 77198. Chirin Jima, S.12.5°E., 6.6 miles (lat. 31°23'10"N., long.

In 118 fathoms. August 17, 1906. Albatross Collection (D.4942). Length 75? to 147mm. 2 examples, smaller poorly preserved.

U. S. N. M., No. 77199.

In 119 fathoms. August 17, 1906. Albatross Collection (D.4943). Length 75? to 205 mm. 7 examples, in poor preservations.

Caelorhinchus kishinouyei Jordan and Snyder

Coelorhynchus kishinouyei Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, p. 376, pl. 20, 1901 (type locality : Misaki, Sagami); Annot. Zool. Japon., vol. 3, p. 120, 1901 (Yokohama). —Jordan and Starks, Bull. U. S. Fish Comm., vol. 22, p. 618, fig., 1902 (1904) (type). —Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, pt. 1, p. 420, (fig. 390 copied) 1913. —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (144) 170, 1916 (Suruga Gulf, 197 to 250 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 427, 1920 (diagnosis in key).

Depth 6 3/5 to 7 1/5; head 4 7/8 to 5 1/5, width 2 to 2 1/8. Snout to eye 2 3/4 to 3 in head; eye 3 4/5 to 3 7/8, 1 1/3 in snout, greater than interorbital; orbit 2 3/4 to 2 9/10 in head, 1 in snout, 1 1/3 times interorbital; maxillary reaches 1/2 to 3/5 in eye, length from front end 3 3/5 to 3 2/3 in head; mandibular barbel 3 in eye; bands of villiform teeth in jaws, of 5 or 6 irregular rows; interorbital 4 to 4 2/3 in head, low, level anteriorly. Gill rakers 0+7 low spinuliferous tubercles on second arch, 1/4 of gill filaments, which 2 1/2 in eye.

Scales 120 in lateral line; 5 above, 14 below, 14 predorsal forward to occiput. Scales with 15 to 19 nearly parallel apical spinuliferous ridges and last spinules extend slightly beyond hind edge of scale; circuli complete, rather fine.

D. II, 9—110?, second simple ray slender, entire, 1 2/5 in head; interdorsal space 2 1/5 to 2 1/3; A. 108, fin height 2 9/10 to 3 1/8; pectoral rays I, 15, fin 1 2/5 to 1 1/2 in head; ventral rays I, 6, fin 2 1/2.

Brown, skin where scales have fallen more or less with silvery white tints. Under surface of head pale to whitish. Iris silvery white. Breast and belly grayish. Inside mouth and gill opening pale. Fins brownish, ventrals darker.

Japan.

U. S. N. M., No. 49395. Misaki, Japan. K. Otaki. (No. 1511.) Length 335 mm. Type.

U. S. N. M., No. 77195. Ose Saki, S.57.5°E., 7.5 miles (lat. 35°5'40"N., long. 38°39'30"E.), Suruga Gulf Japan. In 211 to 235 fathoms. October 15, 1906. Albatross Collection (5065). Length 270 to 297 mm. 3 examples.

U. S. N. M., No. 77196. Ose Saki, S.65.5°E., 9.2 miles (lat. 35°5'20"N., long. 138°37'10"E.), Suruga Gulf, Japan. In 250 fathoms. October 13, 1906. Albatross Collection (5062). Length 255 mm.

Caelorhinchus labiatus (Köhler)

Macrurus labiatus Köhler, Ann. Univ. Lyon, vol. 26, p. 407, pl. 27, fig. 7 (head below), fig. 8 (scale), 1896 (type locality : lat. 46° 34'N., long. 6°52'W., in 570 to 700 meters; Gulf of Gascony, 1710 meters).

Macrurus (Macrurus) labiatus Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 388, 1906 (reference).

Coelorhynchus labiatus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 425, 1920 (name).

Caelorhinchus macrochir (Günther)

Macrurus macrochir Günther, Ann. Mag. Nat. Hist., ser. 4, vol. 20, p. 438, 1877 (type locality : off Enoshima in Sagami Bay, 345 fathoms); Rep. Voy. Challenger, vol. 22, p. 148, pl. 29, fig. B, 1887 (type).

—Goode and Bean, Oceanic Ichth., p. 417, 1895 (reference).

Macrurus (Malacocephalus) macrochir Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 391, 1906 (reference).

Malacocephalus macrochir Garman, Mem. Mus. Comp. Zool., vol. 24, p. 394, 1899 (reference).

Abyssicola macrochir Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 23, p. 376, 1900 (off Tokyo); —Franz, Annot. Zool. Japon., vol. 3, p. 119, 1901 (reference). —Jordan and Gilbert, Bull. U. S. Fish Comm., vol. 22, p. 607, 1902 (1904) (Sagami Bay). Abhandl. Kon. Bayer. Akad. Wiss., vol. 4, Suppl. band 1, p. 26, 1910 (Aburatsubo). —Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 414, 1913 (compiled). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (145) 183, 1916 (Eastern Sea; Bungo Channel; off Matsushima Bay; 129 to 437 fathoms).

Coelorhynchus macrochir Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 425, 1920 (diagnosis in key).

Depth 7 1/4 to 7 9/10; head 4 4/5 to 5 1/6, width 2 1/4. Snout 2 3/5 to 3 in head; eye 3 1/10 to 5 1/8, 1 to 1 4/5 in snout, 1 to 1 2/3 in interorbital; maxillary reaches to or slightly beyond hind eye edge, length from its front end 2 1/2 to 2 7/8 in head; teeth simple conic, curved, in 2 or 3 series in front above and lower irregularly uniserial or biserial; mandibular barbel small, thin, 1/4 of eye; interorbital 3 1/5 to 3 1/3 in head, low, broadly convex. Gill rakers 1+8 low spinescent tubercles on second arch, 1/3 of gill filaments, which 2 2/3 in eye.

Scales 102 to 120? in lateral line, of which 19 to 21 forward of vent; 5 above, 12 to 18 below, 12 to 14 predorsal forward to occiput or close behind hind orbital edge. Scales with 8 to 10 radiating articulated ridged striae apically, not projecting behind scale edge; circuli moderately fine, more or less complete.

D. II, 7 to II, 9--110, first branched ray 1 7/8 to 2 in head; second dorsal origin begins well before end of depressed first dorsal rays; pseudocaudal very small or little developed; A. 104; pectoral rays I, 15, fin 1 2/3 in head, ventral rays I, 6, fin 2 2/3 to 3 1/2.

Uniform brownish, where scales have fallen pockets blackish brown. Iris pale brown. Inside mouth and gill opening blackish. Fins brown.

Japan. My specimens all differ from Günther's figure in showing a large maxillary, which reaches nearly or quite till opposite hind eye edge or beyond.

U. S. N. M., No. 51469.

Length 523 to 527 mm. 2 examples.

U. S. N. M., No. 51470.

Length 530 mm.

U. S. N. M., No. 77247.

Albatross Collection ( ). Length 85 to 178 mm. 24 examples.

U. S. N. M., No. 77248.

Albatross Collection ( ). Length 247 to 377 mm. 3 examples.

U. S. N. M., No. 77278.

Albatross Collection ( ). Length 537 to 568 mm. 2 examples.

U. S. N. M., No. 77279.

Albatross Collection ( ). Length 580 mm.

Caelorhinchus macrolepis Gilbert and Hubbs

Coelorhynchus macrolepis Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 477, fig. 14, 1920 (type locality : vicinity of southern Luzon; Balayan Bay; 193 to 233 fathoms).

Depth 5 1/3; head 2 9/10, width 2 1/8. Snout to eye 2 1/3 in head; eye 3 3/4, 1 1/3 in snout, 1 1/5 times interorbital; maxillary reaches 1/2 in eye, length from front end 4 1/5 in head; mandibular barbel 1/4 of eye; teeth in villiform bands in jaws, of 5 or 6 irregular rows; interorbital 5 1/4 in head, low and nearly level anteriorly with concave median depression. Gill rakers 0+6 low spinescent tubercles on second arch, 1/3 of gill filaments, which 3 2/5 in eye.

Scales 48 in lateral line to rather large pseudocaudal; 5 above, 9? below, 10 predorsal forward to occiput. Scales with 9 to 11 parallel or scarcely radiating spinuliferous apical keels, last spinules extending beyond scale edges; circuli coarse, complete.

D. II, 9__37, second simple ray entire, slender, 2 in head; interdorsal space 3 3/4; A. 43, fin height 4; pseudocaudal 3 7/8; pectoral rays I, 15, fin 2 in head; ventral rays I, 6, fin 2 1/2.

Light brown, head paler, especially below. Breast and belly dark neutral gray. Iris grayish. Inside mouth and gill opening blackish brown. Fins brownish. Ventrals darker or tinged with dusky.

Philippines.

U. S. N. M., No. 78220. Sombrero Island, S.41°E., 4.50 miles (lat. 13°45'15"N., long. 120°46'30"E.), China Sea off southern Luzon. In 236 fathoms. January 16, 1908. Length 138 mm. Type. Albatross Coll. (D.5111).

Caelorhinchus macrorhynchus Smith and Radcliffe

Coelorhynchus macrorhynchus Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 127, pl. 29, fig. 1, 1912 (type locality : Verde Island Passage, in 180 fathoms). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 511, 1920 (off southern Luzon; Verde Island Passage, north of Tawi Tawi; vicinity of Sibuko Bay, Borneo; 180 to 415 fathoms).

—Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 52, 1929 (compiled).

Caelorhinchus maculatus Gilbert and Hubbs

Coelorhynchus maculatus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (427) 446, fig. 9, 1920 (type locality : off southern Luzon; Batangas Bay; between Gillolo and Makyan; 214 to 298 fathoms).

__Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 41, 1929 (copied.

Depth 6 1/3; head 3 3/4, width 2, Snout 2 4/5 in head; eye 3 7/8, 1 1/4 in snout, 1 1/5 times interorbital; maxillary in head, length from front end ; mandibular barbel 4 in eye; villiform teeth in bands in jaws, of 5 or 6 irregular rows; interorbital 4 1/2 in head, low, nearly level forward. Gill rakers 0+5 low spinescent tubercles on second arch, 1/3 of gill filaments, which 1/3 of eye.

Scales 66 in lateral line to end of broken tail; 6 above, 11 below, 10 predorsal to occiput, which at first fourth between hind eye edge and dorsal origin. Scales with 5 radiating apical spinuliferous keels, last spinules extending behind hind scale edge; circuli moderate, complete.

D. II, 9__57?, second simple ray entire, flexible, prolonged, length 1 1/6 in head; interdorsal space 4 1/4; A. 55?, fin height 3 1/5; pectoral rays I, 15, fin 2 in head; ventral rays I, 6, fin 1 7/8.

Body pale brown, under surface of head pale to whitish and abdomen more or less dark gray. Iris gray to whitish. Fins pale brownish, first dorsal and ventral dusky. Inside mouth pale. Inside gill opening dusky.

East Indies, Philippines.

U. S. N. M., No. 78215. Makyan Island (S.), N.54°W., 3 miles (lat. 0°15'N., long. 127°24'35"E.), between Gillolo and Makyan Islands. In 298 fathoms. November 28, 1909. Albatross Collection (D.5621). Length 173 mm to end of broken tail. Tail.

Caelorhinchus mirus (McCulloch)

Coelorhynchus (Paramacrurus) mirus McCulloch, Biol. Res. Endeavour, vol. 5, pt. 4, p. 178, pl. 46, June 8, 1926 (type locality : east of Sydney, in 150 fathoms; off Montague Island, New South Wales, 70 to 100 fathoms; eastern edge of Bass Strait, 100 to 220 fathoms).

Coelorhinchus mirus McCulloch, Austral. Mus. Mem., No. 5, pt. 1, p. 127, June 29, 1929 (reference).

Caelorhinchus notatus Smith and Radcliffe

Coelorhynchus notatus Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 136, pl. 30, fig. 3, 1912 (type locality : Sulu Archipelago, in 230 fathoms). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 462, 1920 type). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 43, 1929 (copied).

Depth 6 3/5; head 4 1/6, width 1 4/5. Snout 2 3/4 in head; eye 3 3/4, 1 1/4 in snout, 1 1/4 times interorbital; maxillary reaches 2/5 in eye, length from front end 4 in head; mandibular barbel 2 3/5 in eye; teeth in villiform bands in jaws, of 6 or 7 irregular rows; interorbital 5 in head, low, level forward. Gill rakers 0+7, low spinescent tubercles on second arch, 1/4 of gill filaments, which 2 1/5 in orbit.

Scales 102 in lateral line; 6 above, 15 below, 9 predorsal to occiput. Scales with 7 to 9 nearly parallel apical spiniferous ridges, last spinules extended well beyond hind scale edge; circuli moderate, complete.

D. II, 9__98, second simple ray slender, entire, length 1 2/5 in head; interdorsal space 3 2/3; A. 98?, fin height 4 1/8?; pectoral rays I, 15, fin 2 1/4 in head; ventral rays I, 6, fin 2 1/5.

Brown, paler on under surface of head. Large dark brown rounded blotch above pectoral basally, second one at front of second low dorsal and third one little before middle of second low dorsal. Iris slate. Inside mouth pale. Inside gill opening blackish brown. Fins brownish.

Philippines. This is one of the few species with contrasted color markings and its large dark blotch at once serves to distinguish it.

U. S. N. M., No. 72948. Tinagta Island (S.), N.71°"., 5.40 miles (lat. 5°10'N., long. 119°47'30"E.), Sulu Archipelago. In 230 fathoms. February 22, 1908. Albatross Collection (D.5162). Length 270 mm. Type.

Caelorhinchus occa Goode and Bean

Macrurus occa Goode and Bean, Proc. U. S. Nat. Mus., vol. 8, p. 595, 1885 (1886) (type locality : lat 28°34'N., long. 86°48'W., Gulf of Mexico, in 335 fathoms). —Günther, Rep. Voy. Challenger, vol. 22, p. 124, 1887 (remarks).

Coelorhynchus occa Goode and Bean, Oceanic Ichth., p. 400, pl. 95, figs. 332 to 333 (head), pl. 96, figs. 337 (profile), 1895 (type). —Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p. 2588, 1898 (copied). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference). —Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., p. 207, 1928 (1930) (compiled).

Macrurus (Coelorhynchus) occa Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 388, 1906 (reference).

Depth 6 7/8 to 8; head 3 1/6 to 3 1/2, width 2 1/8 to 2 1/5. Snout to eye 2 to 2 1/3 in head; eye 5 1/8 to 5 3/4, 2 1/5 to 3 in snout, 1 1/8 to 1 1/6 in interorbital; orbit 4 3/5 to 5 in head, 1 7/8 to 2 1/4 in snout, 1 in interorbital; maxillary reaches 3/4 in orbit, length from front end 4 1/5 to 5 in head; mandibular barbel 2 1/2 in orbit; bands of villiform teeth in jaws, of 4 or 5 irregular rows; interorbital 4 1/2 to 5 1/4 in head, low, but slightly convex. Gill rakers 0+6 low spinescent tubercles on second gill arch, 1/3 of gill filaments, which 1/4 of eye.

Scales 83 in lateral line to pseudocaudal; 6 above, 15 below, 9 precaudal forward to occiput. Scales with 5 or 6 slightly radiating apical spinuliferous keels, last spinules extend back beyond hind scale edge; circuli moderate, complete.

D. II, 9__75, second simple ray slender, front edge entire, length 3 to 3 3/4 in head; interdorsal space 5 4/5 to 7; A. 80, fin height 5 3/5? to 5 2/3; pseudocaudal 2 1/2 to 3 1/2; pectoral rays I, 17, fin 3 to 3 1/5 in head; ventral rays I, 6, fin 3 1/5 to 3 3/4.

Uniformly brown. Snout and under surface of head. Inside mouth brown. Inside gill opening black. Iris gray.

Gulf of Mexico, Gulf Stream.

U. S. N. M., No. 37334. Lat. 28°34'N., long. 86°48'W. In 335 fathoms.

Albatross Collection (D.2396). Length 430 mm. Type. Also paratype 280 mm.

U. S. N. M., No. 45828. Lat. 32°24'N., long 76°55'30"W.

October 21, 1885. Albatross Collection (D.2628). Length 426 mm.

U. S. N. M., No. 45829. Lat. 32°27'30"N., long. 77°20'30"W. In 353 fathoms. October 21, 1885. Albatross Collection (D.2626). Length 257 to 262 mm. 2 examples.

U. S. N. M., No. 45871. Lat. 28°40'N., long. 78°56'. In fathoms. May 3, 1886. Albatross Collection (D.2660) Length 365 mm.

U. S. N. M., No. 45875. Lat. 32°39'N., long. 77°1'W. In fathoms. May 6, 1886. Albatross Collection (D.2676). Length 135 mm.

Caelorhinchus parallelus (Günther)

Macrurus parallelus Günther, Ann. Mag. Nat. Hist., vol. 20, p. 439, 1877 (type locality : off Enoshima, Japan); Rep. Voy. Challenger, vol. 22, p. 125, pl. 29, figs. A, a'-á', 1887 (off New Zealand, 700 fathoms; off Kermadecs, 600 to 630 fathoms; type, 345 fathoms; off Japan 565 fathoms). —Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 4, p. 391, 1889 (lat. 6°29'N., long. 79°34'E., in 597 fathoms, Gulf of Manar).

Macrurus (Coelorhynchus) parallelus Alcock, Journ, Asiatic Soc. Bengal, vol. 63, pt. 2, p. 126, 1894 (diagnosis in key); Cat. Deep Sea Fish Ind. Mus., p. 106, 1899 (gulf of Manar, 597 fathoms). —Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 257, 388 (reference), 1906 (part).

Coelorhynchus parallelus Goode and Bean, Oceanic Ichth., p. 397, 1895 (copied). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). —Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 120, 1901 (off southern Japan). —(Jordan and Gilbert) Jordan and Starks, Bull. U. S. Fish Comm., vol. 22, p. 618, fig., 1902 (1904) (Misaki). —Franz, Abhandl. Bayer, Akad. Wiss., vol. 4, Suppl. band 1, p. 26,

1910 (Aburatsubo). —Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, pt. 1, p. 418, 1913 (compiled). —Weber, Siboga Exped., vol. 57, Fische, p. 163, pl. 4, fig. 3, 1913 (Savu Sea; Halmahera Sea; Ceram Sea; Flores Sea; 567 to 959 meters). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (145) 181, 1916 (Eastern Sea, 369 to 434 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (515) 515 (east coast of Luzon, 383 fathoms). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 53, fig. 11 (head), 1929 (Weber's materials).

Coelorhynchus kermadecus (Jordan and Gilbert) Jordan and Starks, Bull. U. S. Fish Comm., vol. 22, p. 618, 1902 (1904) (on Günther, 1887, pl. 29, fig. A). —Waite, Records Canterbury Mus., vol. 1, No. 1, p. April 25, 1907 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 431, 1920 (diagnosis in key).

Coelorhinchus patagoniae Gilbert and Thompson

Coelorhynchus patagoniae Gilbert and Thompson, Proc. U. S. Nat. Mus., vol. 50, p. 475, pl. 6, fig. 2, 1916 (type locality : between Wellington Island and the mainland on the west coast of Patagonia, in 94 fathoms). Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 426, 1920 (diagnosis in key).

Depth 6 1/2; head 4 1/3, width 1 3/5. Snout to eye 3 in head; eye 3, 1 1/8 in snout, 1 1/3 times interorbital; orbit 1 2/3 in head, 1 1/5 times snout, 1 2/5 times interorbital; maxillary reaches 1/2 in eye, length from front end 3 3/4 in head; mandibular barbel ?; teeth minute, villiform, in bands in jaws, of 4 or 5 irregular rows; interorbital 5 1/4 in head, low, concave medially. Gill rakers 0+7 low spinescent tubercles, 1/4 of gill filaments, which 2 3/4 in eye.

Scales 42? (pockets) to end of broken tail; 4 above, 8?below, 8 predorsal forward to occiput. Scales with 4 to 6 radiating apical spinuliferous ridges, last spinules projecting beyond hind scale edge; circuli moderate, complete.

D. II, 9__63, second simple ray slender, entire, 1 4/5 ? in head; interdorsal space 7 1/2; A. 71, fin height 6 1/4 ?; pectoral rays I, 16, fin 2 in head; ventral rays I, 6, fin 2 1/5.

Light brown, head paler to whitish. Iris grayish. Inside mouth and gill openings dusky. Breast, belly and branchial region neutral gray. Fins pale brown.

Off Patagonia.

U. S. N. M., No. 76862. Lat. 38°8'S., long. 75°53'E. In fathoms.

Albatross Collection (d.2784). Length 125 mm (tail now borken so length only 96 mm). Type.

Caelorhinchus productus Gilbert and Hubbs

Coelorhynchus productus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (145) 175, pl. 9, fig. 1, 1916 (type locality : Suruga Gulf, Japan, in 197 to 297 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 430, 1920 (diagnosis in key).

Depth 7 4/5 to 10; head 3 7/8 to 4 1/4, width 2 to 2 1/4. Snout to eye 1 9/10 to 2 1/5 in head; eye 5 to 5 4/5, 2 1/6 to 3 in snout, 1 to 1 1/5 in interorbital; orbit 3 1/2 to 3 3/4 in head, 1 2/5 to 1 3/5 in snout, 1 1/6 to 1 1/5 times interorbital; maxillary reaches 1/2 to 2/3 in eye, length from front end 4 1/3 to 5 in head; mandibular barbel 2 1/4 to 2 3/4 in eye; teeth in villiform bands in jaws, of 5 or 6 irregular rows; interorbital 4 2/3 to 4 4/5 in head, low, level. Gill rakers 0+6 low spinescent tubercles 1/4 of gill filaments, which 2 1/4 in eye.

Scales 106 in lateral line; 5 above, 12 below, 7 predorsal forward to occiput. Scales with 3 to 5 radiating apical spinuliferous ridges, last spinules extending little beyond hind scale edge; circuli moderate, complete.

D. II, 8 or II, 9--100?, second simple ray slender, entire, 1 9/10 to 2 in head; interdorsal space 4 1/10 to 4 1/5; A. 110?, fin height 5 to 5 1/4; pectoral rays I, 17 or I, 18, fin 2 1/3 to 3 1/4; ventral rays I, 6, fin 2 1/3 to 3 1/8.

Rather dark brown, muzzle and under surface of head paler. Iris grayish. Inside mouth and gill opening blackish. Fins brown, first dorsal and ventrals darker.

Japan.

U. S. N. M., No. 76865.

In 197 to 297 fathoms.

Albatross Collection (D.5059). Length 306 mm. Type.

U. S. N. M., No. 76872.

Albatross Collection (D.5066). Length 220 mm. Also small example 98 mm.

U. S. N. M., No. 76873.

Albatross Collection (D.5059). Length 90 to 247 mm. 4 examples.

Caelorhinchus platorhynchus Smith and Radcliffe

Coelorhynchus platorhynchus Smith and Radcliffe, ~~Pore~~ Proc. U. S. Nat. Mus., vol. 43, p. 133, text fig. 9, pl. 30, fig. 1, 1912 (type locality : Sipadan Island, Borneo, in 476 fathoms). Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (429) 484, fig. 16, 1920 (east coast of Luzon; vicinity of Sibuko Bay, Borneo; Gulf of Boni, Celebes, in 365 to 510 fathoms). Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 47, 1929 (compiled).

Depth 7? to 7 2/3; head 3 3/5? to 3 7/8, width 1 4/5 to 2 1/10. Snout to eye 2 1/4 in head; eye 5 2/5 to 6 1/8, 2 1/3 to 2 7/8 in snout, 1 1/5 to 1 3/5 in interorbital; orbit 3 3/4 to 3 4/5 in head, 1 1/3 to 1 2/5 in snout, 1/6 to 1/5 greater than interorbital; maxillary reaches 1/2 in eye to opposite hind eye edge, length from front end 3 4/5 to 4 1/3 in head; mandibular barbel 1 1/4 to 2 3/4 in eye; teeth in villiform bands in jaws, of 8 or 9 irregular rows; interorbital 4 3/5 to 5 in head, low and slightly depressed anteriorly. Gill rakers 0+7 low spinescent tubercles on second arch, 1/4 of gill filaments, which 1/2 of eye.

Scales 99 in lateral line; 5 above, 13 below, 12 predorsal forward to occiput. Scales with 5 to 7 radiating apical spinuliferous ridges, last spinules extended well beyond scale edge; circuli fine, complete.

D. II, 9__88, second simple ray entire, slender, 1 4/5 in head; interdorsal space 3 4/5 to 4 1/4; A. 88, fin height 5 to 5 1/2; pectoral rays I, 17, length 2 1/10 to 2 1/3 in head; ventral rays I, 6, fin 2 to 2 3/5.

Dark Brown, nearly uniform. Iris grayish. Inside mouth and gill opening dark to blackish. Fins brownish, ventral and anal darkest.

U. S. N. M., No. 72946. Sipadan Island (M.) S.89°W., 12 miles (lat. 4°7'00"N., long. 118°49'54"E.), Sibuko Bay, Borneo and vicinity. In 476 fathoms. September 28, 1909. Albatross Collection (D.5585). Length 380 mm. Type.

U. S. N. M., No. 78236. Albatross Collection (D.5586). Sipadan Island (M.) West, 9.4 miles (lat. 4°6'50"N., long. 118°45'20"E.), Sibuko Bay. In 347 fathoms. September 28, 1909. Length 153 mm. Albatross Collection (D.5587). Sipadan Island (W.) S.12°E., 3.8 miles (lat. 4°10'25"N., long. 118°37'12"E.), Sibuko Bay. In 415 fathoms. September 28, 1909. Length 302 mm.

Caelorhinchus quincunciatus Gilbert and Hubbs

Coelorhynchus quincunciatus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 438, fig. 7, 1920 (type locality : between Samar and Masbate; off eastern Mindoro; between Cebu and Bohol; off south east Luzon; 108 to 162 fathoms.

Depth 7 1/5; head 3 1/2, width 2 7/8. Snout to eye 2 1/4 in head; eye 5 1/2, 2 1/2 in snout as measured to eye, 1 2/5 in interorbital; orbit 4 7/8 in head, 2 in snout as measured to its own front edge, equals interorbital; maxillary reaches 4/5 in eye, length from front end 3 1/10 in head; mandibular barbel 1 1/4 in eye; teeth in villiform bands in jaws, of 5 or 6 irregular rows; interorbital 4 1/4 in head, low, but slightly convex. Gill rakers 0 + 5, short spinescent tubercles on second arch.

Scales 80 (pockets) in lateral line to pseudocaudal; 5? above, 12? below, 11? predorsal forward to occiput which about first third in ~~space~~ space between hind eye edge and dorsal origin. Scales with 6 or 7 radiating series of wide set small spinules, none extended behind hind scale edge; circuli moderate, complete.

D. II, 9__65, first branched ray (broken) estimated about 2 in head; interdorsal space 4 1/10; A. 64, fin height 5?; pseudocaudal 7 1/2; pectoral rays I, 15, fin 2 1/4 in head; ventral rays I, 6, fin 3 4/5.

Pale brown, with more or less silvery white luster on sides. Branchiostegal region, breast, chest and belly tinted with somewhat deep brownish. Iris Whitish. Inside mouth white. Inside gill opening dark to dusky. Fins all pale brown. Ventrals sprinkled with some dark dots.

Philippines.

U. S. N. M., No. 78213. Tubig Point, N. 49°E., 5 miles (lat. 12°12'35"N., long. 124°2'48"E.), between Samar and Masbate. In 135 fathoms. March 13, 1909. Albatross Collection (D.5392). Length 233 mm. Type.

Caelorhinchus quadricristatus (Alcock)

Macrurus quadricristatus Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 8, p. 119, 1891 (type locality : lat. 11°31'40"N., long 92°46'40"E., 188 to 220 fathoms; lat. 11°25'5"N., long. 92°47'6", 405 fathoms, Indian Ocean); Illustrat. Zool. Investigator, pt. 1, pl. 3, fig. 1, 1892.

Macrurus (Coelorhynchus) quadricristatus Alcock, Cat. Deep Sea Fishes Indian Mus., p. 106, 1899 (Andaman Sea, 185 to 405 fathoms).

Coelorhynchus quadricristatus Goode and Bean, Oceanic Ichth., p. 397, 1895 (copied). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 431, 1920 (diagnosis in key).

Caelorhinchus radcliffei Gilbert and Hubbs

Coelorhynchus radcliffei Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 498, figs. 21 to 24, 1920 (type locality : off eastern Mindoro; between Marinduque and Luzon; off south east Mindoro; near Marinduque; off northern Mindanao; between Cebu and Siquijor; between Negros and Siquijor; between Gillolo and Makyan; between Gillolo and Kayoa; 190 to 310 fathoms). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 50, 1929 (compiled).

Coelorhynchus commutabilis form beta Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 131, text figs. 4 to 5, 1912 (off Mindanao, 226 fathoms).

Depth 10; head 3 3/4, width 3. Snout to eye 2 1/8 in head; eye 4 1/3, 2 in snout, 1 1/6 times interorbital; orbit 4, 1 2/3 in snout, 1 1/4 times interorbital; maxillary reaches 3/4 in eye, length from front end 4 7/8 in head; mandibular barbel 4 1/4 in eye; teeth villiform, minute, in jaws; interorbital 5 1/5 in head, low in front, depressed medially. Gill rakers 0+6 low spinescent tubercles, 1/4 of gill rakers, which 1/3 of orbit.

Scales about 100 in lateral line; 6 above, 14 below, 7 forward on predorsal to occiput. Scales with 5 nearly parallel radiating spinuliferous keels, last spinules not extended beyond hind scale edge; circuli moderate, complete.

D. II, 8__(second fin not developed), rays of first fin broken, front ones 3? in head; A. 70?, rudimentary or absent on last fifth of tail; pectoral rays I, 16; ventral I, 6, fin 2 2/3 in head.

Pale brown, with silvery reflections on lower sides. Head largely pale to whitish. Iris gray. Inside mouth whitish. Inside gill opening dusky. Belly dark neutral gray. Fins pale.

East Indies, Philippines.

U. S. N. M., No. 78224. Apo Island (C.), S. 46°"., 8.7 miles (lat. 9°11'00"N., long. 123°23'00"E.), between Negros and Siquijor. In 254 fathoms. August 19, 1909. Albatross Collection (D.5537). Length 136 mm.

Caelorhinchus scaphopsis (Gilbert)

Macrurus (Coelorhynchus) scaphopsis Gilbert, Proc. U. S. Nat. Mus., vol. 13, p. 115, 1890 (1891) (type locality : off southern California, in 145 fathoms). —Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 388, 1906 (reference).

Coelorhynchus scaphopsis Goode and Bean, Oceanic Ichth., p. 397, 1895 (copied). —Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p. 2590, 1898 (copied). — Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 144, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 426, 1920 (diagnosis in key).

Depth 6 1/8; head 4, width 1 9/10. Snout to eye 2 4/5 in head; eye 4 1/3, 1 1/2 in snout, 1 in interorbital; orbit 3 1/8 in head, 1 in snout, 1 1/3 times interorbital; maxillary reaches 3/5 in eye, length from front end 3 in head; mandibular barbel 2 1/3 in eye; teeth in villiform bands in jaws, of 5 or 6 irregular rows; interorbital 4 2/5 in head, low and nearly level. Gill rakers 0+7, low spinescent tubercles on second arch, 1/4 of gill filaments, which 1/2 of eye.

Scales about 105 in lateral line; 6 above, 14 below, 10 predorsal forward to occiput, which about first third in space between hind eye edge and first dorsal origin. Scales with 9 or 10 parallel series of apical spinules, though only 3 or 4 complete and with last spinules projecting beyond hind scale edge; circuli fine, complete.

D. II, 8__85, second simple ray 1 3/5 in head, ends in filament; interdorsal space 2 4/5; A. 95, fin height 3 4/5; pectoral rays I, 16, fin 2 in head; ventral rays I, 6, fin 3.

Pale brown generally. Head pale to whitish, with silvery white tints, grayish on opercles and branchiostegals. Inside mouth white. Inside gill opening blackish brown. Iris silvery white. Fins all light brown, ventrals dusky.

Off California.

U. S. N. M., No. 44272. Lat. 29°19'N., long. 112°50'W.

March 24, 1889.

Albatross Collection (D.3015). Length 251 mm. Type.

Caelorhinchus sexradiatus Gilbert and Hubbs

Coelorhynchus sexradiatus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (429) 458, fig. 11, 1920 (type locality : vicinity of Jolo; between Jolo and Tawi Tawi; in 243 to 318 fathoms). Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 43, 1929 (compiled).

Depth 7 1/8; head 4 1/8, width 2. Snout to eye 2 2/5 in head; eye 4 1/5, 1 4/5 in snout, 1 in interorbital; orbit 3 3/5 in head, 1 1/3 in snout, 1 1/4 times interorbital; maxillary reaches 1/2 in eye, length from front end 3 1/2 in head; mandibular barbel 2 1/5 in eye; interorbital 4 1/2 in head, low, level forward. Gill rakers 0+6, low spinescent tubercles on second arch, 1/4 of gill filaments, which 1/2 of eye.

Scales 75 in lateral line to pseudocaudal; 6 above, 9 below, 9 predorsal forward to occiput. Scales with 8 to 12 slightly radiating apical keels, last spinules extending little beyond hind scale edge; circuli moderate, complete.

D. II, 8__64, second simple ray slender and extended in filament until nearly long as head; interdorsal space 3 1/5 in head; A. 70, fin height 5 1/5; pseudocaudal very small; pectoral rays I, 15, fin 1 9/10 in head; anal rays I, 5, fin 2.

Brown, paler below, especially lower surface of head. Large dark brown blotch above pectoral base, though no traces of others at front of near middle of base of second dorsal fin. Inside mouth and gill opening dark. Iris grayish. Fins all brownish, first dorsal and ventral bases dark or dusky. Belly dark gray.

Philippines. Very closely related to Coelorhinchus notatus Smith and Radcliffe and Coelorhinchus triocellatus Gilbert and Hubbs, differing only in slight details, chiefly in color or with a single dark blotch above each pectoral base.

U. S. N. M., No. 78218. Mt. Dromedario (Tawi Tawi), S. 16° W., 19.2 miles (lat. 5°28'30"N., long. 120°02'27"E.), north of Tawi Tawi. In 315 fathoms. September 23, 1909. (Albatross Collection (D.5575). Length 199 mm to end of broken pseudocaudal.)

Caelorhinchus smithi Gilbert and Hubbs

Coelorhynchus smithi Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (430) 493, fig. 20 (type locality : off eastern Mindoro; west of Bohol; Cagayan Island; Sulu Sea; north of Mindanao; between Cebu and Siquijor; between Negros and Siquijor; near Sibuko Bay, Borneo; between Gillolo and Makyan; 220 to 340 fathoms). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 49, 1929 (compiled).

Coelorhynchus commutabilis Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 128, 1912 (part).

Depth 6 4/5; head 3 1/3, width 2 1/2. Snout to eye 2 in head, ends in slender acuminate spine; eye 4 3/5, 2 1/5 in snout, 1 1/8 in interorbital; orbit 3 1/2 in head, 1 2/3 in snout, 1 1/8 times interorbital; maxillary reaches 4/5 in eye, length from front end 4 in head; mandibular barbel 2 1/2 in eye; teeth in villiform bands in jaws, of 5 or 6 irregular rows; interorbital 4 1/5 in head, low and level or only slightly concave anteriorly. Gill rakers 0+6 spinescent tubercles on second arch, 1/4 of gill filaments, which 2 1/2 in eye.

Scales from above gill opening 98 in lateral line; 5 above, 13 below, 11 predorsal forward to occiput. Scales with 4 to 6 radiating apical spinuliferous keels, last spinules extended behind scale edge; circuli moderate, complete.

D. II, 9__89?, second simple ray slender, entire, 3 in head; interdorsal space 4; A. 98?, fin height 6 1/5; pectoral rays I, 15, fin 2 1/2 in head; ventral rays I, 6, fin 3 4/5.

Brown, lower surfaces paler. Iris gray. Inside mouth pale. Inside gill opening blackish. Belly tinged gray. Sides of heas posteriorly with dark gray tints. Fins brown, more or less darker than body.

East Indies, Philippines.

U. S. N. M., No. 78212. Makyan Island (S.), N. 54°W., 3 miles (lat. 0°15'00"N., long. 127°24'35"E.), between Gillolo and Makyan Islands. In 298 fathoms. November 28, 1909. Albatross Collection (D.5621). Length 265 mm. Type.

Caelorhinchus spinifer Gilbert and Hubbs

Coelorhynchus spinifer Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (432) 516, fig. 30, 1920 (type locality : Gulf of Tomini, Celebes, in 761 fathoms). Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 54, 1929 (type).

Coelorhynchus macrorhynchus (not Smith and Radcliffe) Weber, Siboga Exped., vol. 57, Fische, p. 162, pl. 4, figs. 2-2a (type locality : lat. 9°3'S., long. 119°56'7, Savu Sea, 959 meters).

Depth 7 2/5; head 3 1/2, width 2 1/4. Snout to eye 2 in head; eye 5 1/5, 2 1/2 in snout, 1 1/8 in interorbital; orbit 4 in head, 1 9/10 in snout measured to its own front edge; maxillary reaches opposite hind eye edge, length from front end 3 2/5 in head; mandibular barbel 3 in eye; teeth in villiform bands, minute, in jaws; interorbital 4 1/2 in head, low, nearly level enteriorly. Gill rakers 0+5, low tubercles on second arch, about 1/3 of great filaments, which 2 1/2 in eye.

Scales 80? in lateral line (mostly pockets); 5 above, 12 below, 8 predorsal to occiput which about first third between hind eye edge and first dorsal origin. Scales with 3 slightly radiating spiniferous radiating apical keels, of which last spinule of median keel may project behind hind scale edge; circuli moderate, complete.

D. II, 9__83 (rays damaged), fin height 2 2/3? in head; interdorsal 5 1/3; A. 85, fin height 4 1/2?; pectoral rays I, 17, fin 2 9/10 in head; ventral rays I, 6, fin 3.

Pale brown. Head lighter, becomes dark gray on opercles, mouth below and branchiostegal region. Inside mouth dark. Inside gill opening blackish brown. Iris gray. Belly and abdomen dark neutral gray. Fins all pale, ventrals more or less dusky.

East Indies.

U. S. N. M., No. 78226. Binang Unang Island (E.) S.36°E., 5 miles (lat. 0°04'00"S., long. 121°36'00"E.), Gulf of Tomini, Celebes. In 761 fathoms. November 18, 1909. Albatross Collection (D.5607). Length 178 mm. Type.

Caelorhinchus tenuicauda (Garman)

Macrurus tenuicauda Garman, Mem. Mus. Comp. Zool., vol. 24, p. 216 (397), pl. 49, fig. 1, 1899 (type locality : lat. 7°31'30"N., long 79°14'W., in 458 fathoms, Gulf of Panama).

Macrurus (Macrurus) tenuicauda Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, Fische, p. 389, 1906 (reference).

Macrourus tenuicauda Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., p. 206, 1930, pt. 2 (reference).

Coelorhynchus tenuicauda Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference).

Caelorhinchus thompsoni Gilbert and Hubbs

Coelorhynchus thompsoni Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (425) 442, fig. 8, 1920 (type locality : Balayan Bay, off south west Luzon; off southern Luzon; Verde Island Passage; off northern Mindanao; 135 to 200 fathoms).

Depth 6 to end of broken caudal; head 2 2/3, width 3. Snout to eye 2 1/10 in head; eye 4 7/8, 2 1/5 in snout measured to eye, 1 in interorbital; maxillary reaches 3/4 of eye, length from front end 4 in head; mandibular barbel 4 in eye; teeth simple, conic, villiform, in 6 or 7 irregular rows; interorbital 4 1/5 in head, low, nearly level. Gill rakers 0+6 low spinescent tubercles on second arch, 1/3 of gill filaments, which 2 2/5 in eye.

Scales (pockets) 56? in lateral line to end of broken tail; 5 above, 14? below, 10 predorsal to occiput. Scales with 9 or 10 radiating apical spinuliferous keels, last spinules not extended beyond hind scale edge; circuli fine, complete.

D. II, 9__50?, first branched dorsal ray broken, estimated at least 2 2/3 in head; interdorsal 4 1/4; A. 50?, fin height 6; pectoral rays I, 13, fin 3 in head; ventral rays I, 6, fin 4 1/5.

Light brown, head and body paler to whitish below, branchiostegal region, breast and belly sprinkled with dusky dots. Iris whitish, dark neutral gray above. Inside mouth pale. Inside gill opening with dusky. Fins brownish. Ventrals with more or less dusky.

Philippines.

U. S. N. M., No. 78214. Cape Santiago Light, S. 79°W., 4.5 miles (lat. 13°47'20"N., long. 120°43'30"E.), Balayan Bay, Luzon. In 180 fathoms. February 20, 1909, Albatross Collection (D.5363). Length 208 mm to end of damaged tail. Type.

Caelorhinchus tokiensis (Steindachner and Döderlein)

Macrurus tokiensis Steindachner and Döderlein, Denks. Akad. Wiss. Wien, Math. naturw. Cl., vol. 53, p. 283, 1887 (type locality : Japan).

Coelorhynchus tokiensis Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 120, 1901 (Yokohama). —Jordan and Starks, Bull. U. S. Fish Comm., vol. 22, p. 620, 1902 (1904) (reference). —Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 32, pt. 1, p. 418, 1913 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 179, 1916 (Eastern Sea, 361 to 391 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 431, 1920 (diagnosis in key).

Depth 8?; head 3 1/6?, width 2 3/4. Snout to eye 2 1/4 in head; eye 7 1/5, 3 1/8 in snout, 1 2/5 in interorbital; maxillary reaches opposite hind eye edge, length from front end 4 in head; mandibular barbel 2 in eye; teeth simple, conic, above in 2 or 3 series with outer enlarged wide set row, more villiform and in 4 or 5 irregular rows; interorbital 5, low, broadly convex. Gill rakers 0+7 low rather robust tubercles on second arch, 1/4 of gill filaments, which 1/2 of eye.

Scales not made out.

D. II, 7__100?, second simple ray slender, entire, 2 2/3? in head; A. 88?, fin height equals orbit; pseudocaudal 5 in orbit; pectoral rays I, 15, fin 2 2/3 in head; ventral rays I, 6, fin 3.

Brown, more or less dusky. Head pale, ore or less translucent on muzzle and snout, also under surface of head. Iris pale or grayish. Inside mouth pale. Inside gill opening dusky. Fins more or less dusky.

Japan. The above described specimen in very poor condition, bisected, therefore not revealing all the characters.

U. S. N. M., No. 77194.

Albatross Collection (D.4911). Length 540 mm.

Caelorhinchus triocellatus Gilbert and Hubbs

Coelorhynchus triocellatus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 466, fig. 12, 1920 (type locality : north of Tawi Tawi, in 315 fathoms). Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 45, 1929 (compiled).

Depth 6 1/3; head 3 1/2, width 2. Snout to eye 2 1/5 in head; eye 4 1/4, 2 in snout, 1 1/4 times interorbital; orbit 3 3/4 in head, 1 1/2 in snout, 1 1/3 times interorbital; maxillary reaches 1/2 in eye, length to front end 4 1/4 in head; mandibular barbel 2 3/4 in eye; teeth in villiform bands in jaws, of 5 or 6 irregular rows; interorbital 5 1/5 in head, low, level. Gill rakers 0+6, low xxxxx spiniferous tubercles on second arch, 1/4 of gill filaments, which 2 2/5 in eye.

Scales 76 (pockets) lateral line to pseudocaudal; 6 above, 14 below, 10 predorsal forward to occiput. Scales with 7 to 10 apical radiating spinuliferous keels, last spinules little extended beyond hind scale edge; circuli moderate, complete.

D. II, 9__73, second simple ray elongated and filamentous, entire, length 1 1/3 in head; interdorsal space 4 1/6; A. 75, fin height 3 1/3 in head; pseudocaudal 2 in eye; pectoral rays I, 16, fin 1 2/3 in head; ventral rays I, 6, fin 2.

Brown, paler below and especially on muzzle and under surface of head. Iris grayish. Inside mouth and gill opening with dusky. Belly tinged with dark gray. Large dark brown blotch at and above pectoral fin base, another saddle like at front of second or lower dorsal fin and third before middle of latter. Fins all brownish, ventrals dark.

Philippines.

U. S. N. M., No. 73217. Mt. Dromedario (Tawi Tawi), S. 16°W., 19.2 miles (lat. 5°28'30"N., long. 120°02'27"E.), north of Tawi Tawi. In 315 fathoms. September 23, 1909. Albatross Collection (D.5575). length 189 mm.

Caelorhinchus velifer Gilbert and Hubbs

Coelorhynchus velifer Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (427) 452, fig. 10, 1920 (type locality : off south west Luzon, in 135 to 244 fathoms).

Depth 7 1/8?; head 4 1/2, width 2. Snout to eye 2 3/4 in head; eye 4, 1 1/2 in snout, equals interorbital; orbit 3 2/3 in head, 1 1/5 in snout, 1 1/5 times interorbital; maxillary reaches 1/2 in eye, length to front end 3 3/4 in head; mandibular barbel 5? in eye; teeth in villiform bands in jaws, of 5 or 6 irregular series; interorbital 3 2/5 in head, low, nearly level. Gill rakers 0+5 low rough tubercles on second arch, 1/4 of gill filaments, which 1/2 of eye.

Scales (mostly pockets) 77? in lateral line to broken end of tail; 6 above, 14 below, 30 predorsal, of which 10 forward to occiput. Scales with 5 to 10 apical radiating spinules, last little extended behind scale edge; circuli moderate, complete.

D. II, 9__84?, second simple ray elongate filament, entire, 1 1/7 times head; interdorsal space 2 3/4; A. 86?, fin height 3 2/5; pectoral rays I, 12, fin 1 1/8 in head; ventral rays I, 6 fin 1 2/5.

Light brown, paler below, but neutral gray to blackish on under surface of belly. Iris gray to whitish. Inside mouth pale. Inside gill opening blackish. Fins pale brownish, ventrals more or less dusky.

Philippines. The brownish black spot alleged above and behind pectoral fin not evident in type now, nor is it shown on the figure. A second less distinct spot, extended from first dorsal ray and the lateral line is also not evident now.

U. S. N. M., No. 78216. Escarceo Light, S.71°W., 2.75 miles (lat. 13°32'15"N., long. 121°02'E.), China Sea, vicinity southern Luzon. In 244 fathoms. July 24, 1908. Albatross Collection (D.5294). Length 240 mm. Type.

Caelorhinchus weberi Gilbert and Hubbs

Coelorhynchus weberi Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (431) 503, figs. 25-26, 1920 (type locality : off northern Luzon, in 224 fathoms).

Coelorhynchus commutabilis Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 132, fig. 7, 1912 (off northern Luzon, 224 fathoms).

Depth 7 1/2; head 3 1/2, width 2 1/5. Snout to eye 2 1/10 in head; eye 6, 3 in snout, 1 1/2 in interorbital; orbit 5 1/8 in head, 2 1/5 in snout, 1 1/8 in interorbital; maxillary reaches 2/3 in eye, length from front end 4 in head; preoral length 2 1/2; mandibular barbel 1 3/4 in eye; teeth fine, in rather broad villiform bands in jaws; interorbital 4 3/4 in head, low, level. Gill rakers 0+5 low spinescent tubercles on second arch, less than 1/2 of gill filaments, which 2 1/2 in eye.

Scales 74 in lateral line; 5 above, 11 below, 6 predorsal to occiput. Each scale with 5 to 7 spinous keels apically, last ones hardly or only slightly extended beyond scale edge; circuli rather coarse, more or less complete.

D. II, 8__64, second simple ray with front edge entire, length 2 in head; interdorsal space 4; A. 67, fin height 6; pectoral rays I, 17 fin 2? in head; ventral rays I, 6, fin 2 7/8; small pseudocaudal (broken) 3/4? of eye.

Light brownish, little paler ventrally. Fins dark brown. Belly gray. Inside mouth dark. Inside gill opening blackish.

Philippines.

U. S. N. M., No. 78225. Hermanos Island (N.), N. 86°E., 16.75 miles (lat. 18°34'15"N., long. 121°51'15"E.), off northern Luzon. In 224 fathoms. November 12, 1908. Albatross Collection (D.5325). Length 315 mm. Type.

Genus Hymenocephalus Giglioli

Hymenocephalus Giglioli, Pelagos. Sagg. Prod. Mar. Genova, p. 228, 1884.

(type Hymenocephalus italicus Giglioli, monotypic.)

Mystaconurus Günther, Rep. Voy. Challenger, vol. 22, p. 124, 1887.

(Type Mystaconurus longibarbis Günther, designated by Jordan, Genera of Fishes, pt. 4, p. 437, 1920.)

Hymenogadus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (520) 521, 1920. (Type Hymenocephalus gracilis Gilbert and Hubbs, orthotypic.)

Papyrocephalus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (521) 539, 1920. (Type Hymenocephalus aterrimus Gilbert, orthotypic.)

Body with very short trunk and long slender tapering tail. Head large, soft, cavernous, robust. Snout abrupt, truncate, parabolic. Eye very large, orbital edge forming part of upper profile of head. Mouth wide, lateral. Mandibular barbel long. Bones of head membranaceous. Scales thin, deciduous, with fine short spines. Head naked, also preventral region of abdomen partly or entirely so. First dorsal broad, advanced far forward over pectoral base, spine smooth. Second dorsal and anal origins nearly opposite, well separated from end of first dorsal. Pecotral rather narrow, branched rays 9 to 15.

Small, fragile species, tropical and usually less than 300 mm long. Known chiefly by the soft thin bone of the large head.

Hymenocephalus antraeus Gilbert and Cramer

Hymenocephalus antraeus Gilbert and Cramer, Proc. U. S. Nat. Mus., vol. 19, p. 428, pl. 46, fig. 2, 1897 (type locality : off Hawaiian Islands, 298 to 343 fathoms). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). —Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 663, 1903 (Pailolo Channel; off Oahu; Kauai; Maui; 257 to 437 fathoms). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 521, 1920 (Albatross Station D.3467). —Fowler, Mem. Bishop Mus., vol. 10, p. 87, 1928 (Hawaiian Islands).

Macrurus (Hymenocephalus) antraeus Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 390, 1906 (reference).

Depth 6 2/3 to 7 1/5; head 4 3/4 to 5 1/4, width 2 to 2 1/4. Snout 4 2/3 to 4 3/4 in head, 1 2/5 to 1 2/3 in eye; eye 2 1/2 to 2 3/4 in head; preoral vertical, length 5; maxillary reaches nearly or quite opposite hind eye edge, length from front end 1 3/4 to 2 in head; barbel absent or vestigial; teeth minute, in narrow villiform bands or triserial, uniform; interorbital 3 1/3 to 4 1/4 in head, 1 2/5 to 1 1/2 in eye, well concave. Gill rakers 6 + 17, low spinescent tubercles on second arch, 2 1/3 in gill filaments, which 1/4 of eye.

Scales most all fallen, thin, large, cycloid and pockets largely obliterated; 5? scales above lateral line, 10? predorsal forward opposite hind edge of orbit. Scales with simple; rather large, complete circuli.

D. II, 7__84? to 100, second simple ray slender, entire, 1 1/4 to 1 2/5 in head; interdorsal space 1 3/5 to 1 3/4; A. 115, fin height 3?; pectoral I, 9 or I, 10, length 1 1/8 to 1 1/2? in head; ventral rays I, 11, length 1 2/5 to 1 3/5 in head.

Brownish, long slender tapering tail paler. Most of head and trunk more or less dusky to blackish brown, with brilliant leaden silvery reflections, especially sides of head and abdomen. Iris dusky or dark neutral gray. Inside mouth pale or gray. Inside gill opening sprinkled with dusky, paler well inside and often with silvery or coppery tints. Often silvery gray lateral streak along middle of side of tail. Fins all pale or very light brownish, often with dark speck at base of each dorsal and anal ray.

Hawaiian Islands. A very abundant species, with head, trunk and fore part of body blackish, overshot with silvery gray sheen.

U. S. N. M., No. 47716. Lat. 21°13'N., long. 157°43'37"W., Hawaiian Islands. In 310 fathoms. December 3, 1891. Albatross Collection (D.3467). Length 65 to 90 mm. 5 examples.

U. S. N. M., No. 47727. Lat. 21°10'30"N., long. 157°48'30", Hawaiian Islands. In 337 fathoms. December 4, 1891. Albatross Collection (D.3471). Length 110 to 155 mm. 3 examples.

U. S. N. M., No. 47735. Lat. 21°8'30" N., long. 157°49'W., Hawaiian Islands. In 343 fathoms. December 4, 1891. Albatross Collection (D.3470). Length 117 to 170 mm. 51 specimens. Types.

U. S. N. M., No. 47740. Lat. 21°9'N., long. 157°53'W., Hawaiian Islands. In 298 fathoms. December 6, 1891. Albatross Collection (D.3476). Length 110 to 160 mm. 8 examples.

U. S. N. M., No. 51674.

Mokuhooniki Islet, S. 81°45', W. 9.5', Pailolo Channel, between Maui and Molokai. In 258 to 284 fathoms. April 29, 1902. Albatross Collection (D.3898). Length 107 to 144 mm. 6 examples.

U. S. N. M., No. 55240. Diamond Head Light, N.50°30', E.10.3', south coast of Oahu. In 294 to 330 fathoms. May 6, 1902. Albatross Collection (D.3917). Length 145 to 168 mm. 3 examples.

U. S. N. M., No. 55246.

Length 160 to 185 mm. 12 examples.

U. S. N. M., No. 55247.

Length 75 to 190 mm. 89 specimens.

U. S. N. M., No. 55248. Mokuhooniki Islet, S.81°30',W.20.1', north east approach to Pailolo Channel, between Maui and Molokai. In 297 to 306 fathoms. July 21, 1902. Albatross Collection (D.4088). Length 165 to 170 mm. 5 examples.

U. S. N. M., No. 55250. Mokuaeae Point, S.66°,E.10.4', vicinity of Kauai. In 275 to 368 fathoms. June 23, 1902. Albatross Collection (D.4025). Length 68 to 70 mm. 2 examples.

Hymenocephalus aterrimus Gilbert

Hymenocephalus aterrimus Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 666, pl. 93, 1903 (1905) (type locality : off Kauai Island; Molokai; Kaiwi Channel; Bird Island; Nihau; 293 to 800 fathoms). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, pp. (521) 539, 540, 1920 (reference).

—Fowler, Mem. Bishop Mus., vol. 10, p. 87, 1928 (compiled).

Depth 6 1/4 to 7; head 4 7/8 to 5 2/3, width 1 4/5 to 2 1/8. Snout 3 1/2 to 4 in head; eye 3 1/2 to 4 1/4, 1 to 1 2/5 in snout, 1 2/3 to 1 7/8 in interorbital; preoral length 4 to 4 3/5 in head; maxillary reaches opposite hind eye edge, length from front end 1 3/4 to 1 4/5 in head; no barbel; teeth form very narrow, villiform bands in jaws, minute, depressible, in but few or several series; interorbital 2 1/2 to 3 in head, low, cavernous like most of head and concave. Gill rakers 4 or 5+20 or 21 low compressed spinuliferous tubercles on second arch, long as gill filaments, which 1/3 of eye.

Scales all very caducous, all fallen, (pockets) 90 in lateral line; 3 above, 5 below.

D. II, 9—114, second simple ray slender, entire, 1 3/5 to 2 in head; interdorsal space 1 1/2 to 1 2/3; A. 110, fin height 2 4/5 to 3; pectoral rays I, 12, fin 1 1/5 to 1 1/2 in head; ventral rays I, 12 or I, 13, fin 1 1/4 to 1 2/3 in head, first simple ray ending in filament.

Head and trunk below neutral black, trunk above and tail dark brown. Iris dark neutral gray. Inside mouth and gill opening black. Fins all more or less dusky, especially basally.

Hawaiian Islands. A small dark species, with blackish head and trunk.

U. S. N. M., No. 51649. Hanamaulu warehouse, S. 33°,".9.5', vicinity of Kauai. In 385 to 733 fathoms. June 11, 1902. Albatross Collection (D.3989). Length 127 mm. Type.

U. S. N. M., No. 51677.

Albatross Collection (D.). Length 65 to 178 mm. 15 examples.

U. S. N. M., No. 51678. Mokapu Islet, S.76°,W.13', north coast of Molokai. In 295 fathoms. April 30, 1902. Length 62 to 108 mm. 4 examples.

Hymenocephalus barbatulus Gilbert and Hubbs

Hymenocephalus barbatulus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (521) 539, fig. 34, 1920 (type locality : off eastern Mindoro, 380 fathoms).

Hymenocephalus cavernosus (Goode and Bean)

Bathygadus cavernosus Goode and Bean, Proc. U. S. Nat. Mus., vol. 8, p. 598, 1885 (type locality : lat. 28°45'N., long. 86°26'W., Gulf of Mexico, 227 fathoms). —Günther, Rep. Voy. Challenger, vol. 22, p. 156, 1887 (note). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference).

Hymenocephalus cavernosus Goode and Bean, Oceanic Ichth., p. 408, pl. 97, fig. 341, 1895 (type). —Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, vol. 3, p. 2580, 1898 (copied). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1917 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 521, 1920 (diagnosis in key). —Jordan, Evermann, Clark, Rep. U. S. Comm. Fisher., pt. 2, p. 207, 1930 (compiled).

Macrurus (Mystaconurus) cavernosus Alcock, Cat. Deep Sea Fishes Indian Mus., p. 117, 1899 (Goode and Bean's example). —Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 390, 1906 (reference).

Depth 6 to 7; head 4 4/5 to 5 1/8, width 1 4/5 to 1 7/8. Snout 3 2/3 to 4 in head; eye 3 to 3 1/8, greatly exceeds snout, 1 to 1 1/8 in interorbital; mandibular barbel 1/3 of eye; maxillary reaches 4/5 to hind eye edge, length from its front edge 1 3/4 to 1 7/8 in head; teeth even, minutely villiform, in narrow bands in jaws; interorbital 2 7/8 to 3 1/8, low, unevenly depressed. Gill rakers 4 + 17 short robust spinescent points on second arch, 1/2 of gill filaments, which 1/4 of eye.

Scales 80 in lateral line, of which 12 forward of vent; 6 above, 6 below, 9 forward on predorsal to occiput opposite hind eye edge. Scale mostly all fallen, apparently present on head where nearly large as on body. Scales with 4 or 5 rows of slender and rather long spinules apically; circuli rather coarse and few.

D. II, 9__133, first dorsal (damaged) little over 1/2 of head; interdorsal space 1 7/8 in head; A. 95, higher anteriorly and much higher than second dorsal; pseudocaudal minute short rudiment; pectoral rays I, 12, fin 1 2/3 to 2 1/2 in head; ventral rays I, 10, fin 1 1/8 in head, first ray ending in filament.

Light brown, with silvery white sheen on sides of head and trunk, becoming more grayish on belly. Eyes silvery white. Inside mouth and gill opening pale to whitish. Fins all pale or whitish.

Gulf of Mexico. Although Goode and Bean state the scales are "cycloid, with no visible armature" several scales on the belly in a few examples, are spinescent. Their figure is quite crude, failing to represent details clearly. In all my examples except the type, the under surfaces of the head and trunk are quite dark or swarthy.

U. S. N. M., No. 37337. Lat. 28°45'N., long. 86°26'W., Gulf of Mexico. In 227 fathoms. March 14, 1885. Albatross Collection (D.2398). Length 150 mm. Type of Bathygadus cavernosus.

U. S. N. M., No. 74341.

Fish Hawk Collection (870). Length 123 mm.

U. S. N. M., 2 examples. Lat. 28°42'N., long 86°36'W., Gulf of Mexico. In 280 fathoms. March 14, 1885. Albatross Collection (D.2397). Length 150 to 163 mm.

U. S. N. M., 5 examples. Lat. 29°3'15"N., long. 88°16'W., Gulf of Mexico. In 324 fathoms. February 11, 1885. Albatross Collection (D.2376). Length 110 to 152 mm.

Hymenocephalus gracilis Gilbert and Hubbs

Hymenocephalus gracilis Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (520) 522, fig. 31, 1920 (type locality : off southern Luzon, 162 fathoms).

Depth 8 1/2; head 5 1/5, width 2. Snout 5 in head, 1 1/2 in eye; eye 2 7/8 in head; preoral short, steep, length 6 1/8; maxillary reaches 3/4 in eye, length from front end 2 in head; mandibular barbel 1 1/5 in eye; teeth minute, uniform, in villiform bands in jaws; interorbital 5 1/3 in head, 2 in eye, low, concave. Gill rakers 0 + 12 low spinescent tubercles, 1/3 of gill filaments, which 1/3 of eye.

Scales (pockets) 50 in lateral line to pseudocaudal; 3 above, 8? below, 9? predorsal forward till opposite hind eye edge. Scales cycloid, thin, smooth; circuli moderate, complete.

D. II, 10__70, second simple ray slender, pungent, with few weak antrorse denticles along front edge subterminally, length 1 1/2? in head; interdorsal space 1 1/3; A. 68, fin height 3 2/5?; pectoral rays I, 12, fin 1 7/8 in head; ventral rays I, 7, fin 1 3/5, first ray ending in filament.

Pale brown generally, sides and lower surfaces with silvery white tints, all sprinkled with brown specks or dots. Iris slate. Inside mouth pale or whitish, also inside gill opening. Chin and inner edges of branchiostegals with many parallel transverse close-set dark or blackish lines. Chest and breast before ventral fin bases coppery, with rather large scattered dusky dots or specks. Middle of

breast with small black depression containing dark lens-like body. Vent in black spot. Fins pale or whitish. Ventral bases blackish and dark speck or dot at base of each dorsal and anal ray. Along inner side of gill opening many parallel vertical close set striae.

Philippines.

U. S. N. M., No. 78227. Escarceo Light, N.36°"., 3.25 miles (lat. 13°28'45"N., long. 121°1'12"E., China Sea in vicinity of southern Luzon. In 162 fathoms. July 23, 1908. Albatross Collection (D.5292). Length 94 mm. Type.

Hymenocephalus grimaldii Weber

Hymenocephalus grimaldii Weber, Siboga Exped., vol. 57, p. 169, pl. 1, fig. 1, 1913 (type locality : lat. 7°19'4S., long. 116°49'5E., Bali Sea, 538 meters). —Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (520) 535, 1920 (copied).

Hymenocephalus grimaldi Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 59, fig. 12, 1929 (type).

Hymenocephalus heterolepis (Alcock)

Macrurus heterolepis Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 4, p. 396, 1889 (type locality : Andaman Sea off Ross Island, 265 to 271 fathoms; Bengal Bay between north and south Sentinal Islands, 220 to 240 fathoms); ser. 6, vol. 8, p. 122, 1891 (Bengal Bay, 118 to 220 fathoms); Illustrat. Zool. Investigator, pt. 1, pl. 3, fig. 30, 1892; Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, p. 309, 1896.

Hymenocephalus heterolepis Goode and Bean, Oceanic Ichth., p. 403, 1895 (copied). Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 521, 1920 (diagnosis in key).

Macrurus (Mystaconurus) cavernosus (not Goode and Bean) Alcock, Cat. Deep Sea Fishes Indian Mus., p. 117, 1899 (Gulf of Manár and Andaman Sea, 180 to 405 fathoms; not American specimen)

Depth 5? to 7 1/4; head 4 to 4 2/3, width 2 1/5 to 2 1/4. Snout to eye 4 in head; eye 3 1/2 to 4 in head, 1 to 1 1/10 in snout, 1 1/8 to 1 1/4 in eye; orbit 3 1/8 to 3 1/5 in head, 1 in interorbital; preoral length 4 4/5 to 5 1/2 in head; mandibular barbel 2 1/4 to 3 1/2 in orbit; maxillary reaches opposite hind edge of orbit, length 1 7/8 to 1 9/10 in head; teeth fine, in villiform bands in jaws of 4 or 5 irregular rows; interorbital 2 4/5 to 3 in head, low, cavernous, depressed irregularly. Gill rakers 4 + 18 low spinescent clavate tubercles on second arch, 1/3 of gill filaments, which 2 1/2 in eye.

Scales (pockets) 90 or more in lateral line; 4 above, 8? predorsal forward opposite hind orbital edge. Scales with 9 to 11 irregular parallel rows of spinules, last extending well behind hind scale edge; circuli coarse, rather obscure apically.

D. II, 10__106, second simple ray slender, entire, length 1 1/4 in head; interdorsal space 1 3/5; A. 110, fin height 3; pectoral rays I, 14, fin 1 2/3 in head; ventral rays I, 11, fin 1 1/2, first ray ending in filament.

Light brown generally. Head little paler than body, especially above and on muzzle. Lower or under surface of head, breast and belly dark or dusky, with coppery shade before ventral bases. Isthmus inside gill opening, side of breast and belly behind ventral bases with fine parallel vertical striae. Breast before ventral with dark depression containing small dark gray lens-like body. Vent in black blotch extending forward as median black line on belly. Inside mouth pale or whitish. Gill opening similar, only dusky or dark brown above inside and along edges of branchiostegals.

Gulf of Manár, Bengal Bay, Andaman Sea.

U. S. N. M., No. 44421. Andaman Sea. Investigator Collection. Indian Museum. Length 127 to 134 mm. 2 examples, rather poorly preserved.

Hymenocephalus italicus Giglioli

Hymenocephalus italicus Giglioli, Pelagos. Sagg. Prod. Mar. Genova, p. 228, fig. , 1884 (type locality : Genoa). —Vaillant, Expéd. Sci. Travailleur et Talisman, Poiss., p. 211, pl. 19, fig. 1, a-d (off Morocco; Soudan; Cape Verde; 265 to 1042 meters). —Goode and Bean, Oceanic Ichth., p. 406, 1895 (copied). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 521, 1920 (diagnosis in key).

Macrurus italicus Günther, Rep. Voy. Challenger, vol. 22, p. 140, 1887 (Nice). —Collett, Rép. Camp. Sci. Monaco, vol. 10, p. 85, pl. 2, figs. 7b-c, 1896 (off Pico - Fayal, Azores, 800 to 927 meters).

Macrurus (Hymenocephalus) italicus Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 390, 1906 (reference).

Depth 8 to 9 1/4; head 5 2/5 to 6, width 2 1/8 to 2 1/4. Snout 3 1/4 to 4 in head, 1 1/3 to 1 2/5 in eye; eye 2 4/5 to 3 in head; preoral profile vertical, length 4 to 5; maxillary reaches opposite hind eye edge, length from front end 1 2/3 to 1 3/4 in head; no barbel; teeth in narrow villiform bands in jaws, minute, uniform, of 3 or 4 irregular rows; interorbital 3 to 3 1/5 in head, low, cavernous, irregularly concave. Gill rakers 3 + 17, short clavate dentigerous tubercles on second arch, 1/2 of gill filaments, which 4 1/2 in eye.

Scales all fallen and pockets indistinct, squamation not made out; 5? above, 12 or 13? below. Scales with 8 or 9 small short denticles counted transversely apically, not extended behind scale edge; circuli coarse, complete.

D. II, 9—118, second simple ray slender, entire, length 1 2/5 in head; interdorsal space 1 1/2; A. 120, fin height 3 1/5; pectoral rays I, 12, fin 1 2/3 to 1 3/4; ventral rays I, 12, fin 1 1/5 to 1 3/5, first ray ending in filament.

Pale brown, with under surface of head and belly darker, all these regions also overshot with silvery gray. Iris silvery and muzzle above pale. Fins all more or less pale to whitish, ventral bases black. Inside mouth pale to whitish. Inside gill opening pale to whitish below, with brown above. Breast coppery, with median small slate colored lens-like body. Inner walls of gill opening below and sides of breast with parallel close set narrow vertical striae.

Mediterranean, eastern Atlantic.

U. S. N. M., No. 42100.

Paris Museum (86+51). Length 120 mm.

U. S. N. M., No. 42103.

Paris Museum (86+49). Length 138 mm.

Hymenocephalus longiceps Smith and Radcliffe

Hymenocephalus longiceps Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 111, pl. 23, fig. 3, 1912 (type locality : lat. 13°10' 21"N., long. 123°59'54"E., off south east Luzon, 201 fathoms). — Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1906 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (520) 525, 1920 (near Hong Kong; Formosa; western Luzon; south western Luzon; Marinduque; Mindoro; western Bohol; between Cebu - Bohol; south eastern Luzon; between Jolo - Tawi Tawi; Darvel Bay, Borneo; between Gillolo - Makyan; 107 to 298 fathoms). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 57, 1929 (Weber's example).

Hymenocephalus striatissimus (part) Weber, Siboga Exped., vol. 57, p. 168, 1913 (Flores Sea, 521 meters).

Depth 8 2/5; head 5 1/8, width 2. Snout to eye 3 3/4 in head; eye 4 4/5, 1 1/3 in snout; orbit 3 1/5 in head; preoral very short; maxillary reaches opposite hind edge of orbit, length from front end 1 4/5 in head; mandibular barbel 2 4/5; teeth in villiform bands in jaws, fine, uniform, in 7 or 8 irregular rows; interorbital 5 3/5 in head, 1 3/4 in orbit, concave. Gill rakers 3 + 14 low spinescent tubercles on second arch, 1/3 of gill filaments, which 2 3/4 in orbit.

Scales (pockets) 100 in lateral line; 3 above, 5 below, 11 predorsal forward until opposite hind orbital edge. Scales most all fallen and structure therefore not made out.

D. II, 10__138, second simple ray slender, length 1 1/3 in head; interdorsal space 1 1/4; A. 135, fin height 3 4/5; pectoral rays I, 14, fin 1 4/5 in head; ventral rays I, 7, fin slightly longer than head, first ray ending in filament.

Brown, with silvery white to gray sheen all along side of head and body. Iris pale. Inside mouth pale to white, mottled with gray. Inside gill opening pale to white, with same gray clouding. Lower face of isthmus and breast dark coppery, latter with small black depression containing dark neutral gray lens-like body. Inner walls of isthmus in gill opening, sides of breast and belly behind ventrals with many fine close set parallel striae. An iridescent silvery gray pale area on breast before each ventral fin base, which broadly blackish. Fins otherwise all pale or lighter than body.

East Indies, Philippines.

U. S. N. M., No. 72927. Legaspi Light, S.88°W., 14.3 miles (lat. 13°10'21"N., long. 123°59'5"E.), east coast of Luzon. In 201 fathoms. June 8, 1909. Albatross Collection (D.5459). Length 217 mm. Type.

Hymenocephalus lethonemus Jordan and Gilbert

Hymenocephalus lethonemus Jordan and Gilbert, Bull. U. S. Fish Comm., vol. 22, p. 615, fig. , 1902 (Aug. 1904) (type locality : Sagami Bay, Japan). —Jordan, Tanaka, Snyder, Journ. College Sci., vol. 33, p. 413 (fig. 383 copied), 1913 (compiled). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p.(145) 188, 1916 (Eastern Sea; east coast Hondo; Suruga Gulf; Sagami Bay; Uruga Strait; 197 to 440 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 521, 1920 (diagnosis in key). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 60, 1929 (part).

Depth 7 1/4 to 9 1/2; head 5 1/4 to 6, width 1 4/5 to 2. Snout 3 1/2 to 4 in head, 1 to 1 1/8 in eye; eye 3 1/4 to 3 1/2 in head, 1 to 1 1/5 in interorbital; preoral length 4 to 4 1/2 in head; maxillary reaches opposite hind eye edge or slightly beyond, length from front end 1 4/5 to 2 in head; no barbel; teeth minute, in very narrow villiform bands in jaws; interorbital 3 to 3 1/3 in head, unevenly cavernous and concave. Gill rakers 4 + 20 low clavate spinescent tubercles on second arch, 1/2 of gill filaments, which 3 3/4 in head.

Scales all fallen and pockets obscure so squamation not made out.

D. II, 10__120, second simple ray slender, entire, length 1 1/4 to 1 2/5 in head; interdorsal space 1 2/5 to 1 2/3; A. 110, fin 2 4/5 to 3 1/8 in head; pectoral rays I, 13, fin 1 3/5 to 1 3/4 in head; ventral rays I, 10, fin 1 to 1 1/5.

Brown, with silvery white to gray reflections on sides, especially on cheek, opercle and trunk. Iris silvery to gray white. Inside mouth pale or gray. Inside gill opening whitish, gray or neutral gray to slate shades above. Silvery gray to black on breast, isthmus and belly, with many close set vertical parallel striae, these all extending back along side of breast and behind ventral fin bases. No white blotches before ventral fin bases, which black. Fins pale, usually dark spot at base of each dorsal and anal ray.

Japan.

U. S. N. M., No. 50936. Manazuru Zaki, 26°,W. 6.0 miles, off Honshu. In 120 to 265 fathoms. May 5, 1900. Albatross Collection (D.3697). Length 140 mm. Type.

U. S. N. M., No. 51455.

Albatross Collection

Length 85 to 123 mm. 3 paratypes.

U. S. N. M., No. 77228.

Albatross Collection (D.5059). Length 95 mm.

U. S. N. M., No. 77229.

Albatross Collection (D.5060). Length 88 to 123? mm. 2 examples.

U. S. N. M., No. 77230.

Albatross Collection (D.4908). Length 120 mm.

U. S. N. M., No. 77232.

Albatross Collection (D.). Length 142 to 185 mm. 2 examples.

U. S. N. M., No. 77233.

Albatross Collection (D.5066). Length 118 mm.

U. S. N. M., No. 77234.

August 13, 1906.

Albatross Collection (D.4918). Length 166 to 147 mm. 2 examples.

U. S. N. M., No. 77235.

October 26, 1906.

Albatross Collection (D.5093). Length 122 to 138 mm. 2 examples.

U. S. N. M., No. 77236.

Albatross Collection (D.5067). Length 53 to 90? mm. 2 examples.

Hymenocephalus longibarbis (Günther)

Macrurus longibarbis Günther, Rep. Voy. Challenger, vol. 22, p. 139, pl. 18, fig. C, 1887 (type locality : off Matuku, Fiji).

Macrurus (Mystaconurus) longibarbis Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 390, 1906 (reference).

Hymenocephalus longibarbis Goode and Bean, Oceanic Ichth., p. 406, 1895 (copied). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (name); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 520, 1920 (diagnosis in key).

Hymenocephalus longibarbus Whitley, Journ. Pan. Pac. Res. Inst., vol. 2, No. 1, p. 4, Jan. Mar. 1927 (reference). —Fowler, Mem. Bishop Mus., vol. 11, No. 5, p. 320, 1931 (reference).

Hymenocephalus longipes Smith and Radcliffe

Hymenocephalus longipes Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 109, pl. 23, fig. 1, 1912 (type locality : between Panay and Guymaras, 137 fathoms). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (520) 527, 1920 (off south west Luzon; between Burias-Luzon; between Marinduque-Luzon; Marinduque; between Leyte-Cebu; between Cebu-Bohol; between Panay-Guimaras; north Mindanao; 150 to 215 fathoms).

Hymenocephalus nascens Gilbert and Hubbs

Hymenocephalus nascens Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (521) 535, fig 33, 1920 (type locality : Sibuko Bay, Borneo; vicinity of Hong Kong; southern Luzon, Marinduque; eastern Luzon; Mindanao; between Gillolo-Makayan; 100 to 423 fathoms).

Hymenocephalus lethonemus (not Jordan and Gilbert) Weber, Siboga Exped., vol. 57, p. 167, 1913 (Flores Sea; Halmabera Sea; Ceram Sea; Bali Sea; 521 to 798 meters). Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 61, 1929 (note).

Depth 6 1/2; head 4 3/4, width 1 2/3. Snout 3 7/8 in head, 1 1/5 in eye; eye 3 1/2 in head; preoral profile but slightly inclined from vertical, length 5 1/8 in head; maxillary reaches slightly beyond eye, length from front end 1 3/4 in head; no barbel; teeth uniform, minute, in narrow bands in jaws, of 3 to 5 irregular series; interorbital 3 1/5 in head, 1 1/8 in eye, irregularly concave. Gill rakers 5 + 18, low clavate spinuliferous tubercles on second arch, 1/2 of gill filaments, which 1/4 in eye.

Scales (pockets) 64 in lateral line; 4 above, 5 below, 9 forward till opposite hind eye edge. Scales with 8 or 9 irregular rows of small apical spinules, last not extended behind scale edge; circuli fine, complete.

D. II, 10__75, second simple ray slender, pungent, entire, length 1 3/4? in head; interdorsal space 1 1/5; A. 77, fin height 3 1/4?; pectoral rays I, 15?, fin 1 3/4 in head; ventral rays I, 12, fin 1 2/5.

Brown, with silvery gray reflections in head and lower side of body. Under surface of head, breast and belly generally dusky or neutral black. Iris gray. Inside mouth pale to whitish. Inside gill opening pale, marbled brown above. Walls of isthmus inside gill opening and patch before each ventral on breast, dark coppery. Fine vertical striae on inner face of isthmus, also extend along side of breast and behind ventral fin bases. Dark spot on middle of breast with small neutral slate lens-like body. Bases of paired fins blackish brown, in contrast to otherwise pale color. Fins mostly lighter than body.

East Indies, Philippines, China.

U. S. N. M., No. 78229. Sipadan Island (W.), S.12°#., 3.8 miles (lat. 4°10'35"N., long. 118°37'12"E.), Sibuko Bay, Borneo. In 415 fathoms. September 27, 1909. Albatross Collection (D.5587). Length 143 mm.

Hymenocephalus papyraceus Jordan and Gilbert

Hymenocephalus papyraceus Jordan and Gilbert, Bull. U. S. Fish Comm., vol. 22, p. 614, fig. , 1902 (Aug. 1904) (type locality : Sagami Bay, Japan). —Jordan, Tanaka, Snyder, Journ. College Sci., vol. 33, p. 412 (fig. 382 copied), 1913 (compiled). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (521) 539, 540, 1920 (reference).

Depth 7 1/5; head 5 2/5, width 2. Snout 3 3/4 in head; eye 4, 1 1/4 across snout, 1 1/8 in interorbital; preoral profile vertical, length 3 4/5 in head; maxillary reaches 1/2 in eye, length from front end 2 in head; mandibular barbel minute, 1/6 of eye; teeth minute, in narrow villiform bands, of 3 or 4 irregular series; interorbital 3 1/8? in head, concave. Gill rakers 4 + 14 low clavate spinescent tubercles on second arch, 1/2 of gill filaments, which 1/4 of eye.

Scales most all fallen and pockets indistinct, so squamation not made out; 2? above lateral line.

D. II, 9__114?, second simple ray slender, entire, length 1 1/2 in head; interdorsal space 2 1/4?; A. 117, fin height 3 in head; Pectoral rays I, 15, fin 1 4/5 in head; ventral rays I, 10, fin 1 1/8, first ray ending in filament.

Largely uniform brown, more or less minutely specked with dark brown. Inside mouth and gill opening pale, with dark brown cloudings. Head below with dark and metallic tints. Breast dark coppery, with small dark median depression containing dark gray lens-like body. Walls of isthmus inside gill opening and side of chest with numerous parallel fine vertical striae. Chin and throat between mandibular rami with close set dark brown parallel fine transverse lines. Belly dark to neutral blackish. Fins pale, ventral bases blackish.

Japan.

U. S. N. M., No. 50935. Manazuru Zaki, 26°,W.6 miles, off Honshu. In 120 to 265 fathoms. May 5, 1900. Albatross Collection (D.3697). Length 147 mm. Type.

Hymenocephalus striatissimus Jordan and Gilbert

Hymenocephalus striatissimus Jordan and Gilbert, Bull. U. S. Fish Comm., vol. 22, p. 612, fig. , 1902 (Aug. 1904) (type locality : Suruga Bay, Japan). —Weber, Siboga Exped., vol. 57, p. 168, 1913 (Madura Sea; Makasser Straits; Timor Sea; 289 to 520 meters). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (145) 187, 1916 (Eastern Sea; off central Hondo; Suruga Gulf; 197 to 297 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (520) 527, 1920 (Philippines). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 58, 1929 (Weber's materials).

Hymenocephalus striatissimus Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 411 (fig. 381 copied), 1913 (compiled; error).

Hymenocephalus striatissimus striatissimus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 529, 1920 (near Hong Kong; Formosa; south east of Luzon; 208 to 270 fathoms).

Hymenocephalus torvus Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 111, pl. 23, fig. 3, 1912 (type locality : off south east Luzon, 201 fathoms).

Hymenocephalus striatissimus torvus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 530, 1920 (off southern Luzon; east Mindoro; west Bohol; between Marinduque - Luzon; north west Panay; south west Mindoro; Balayan Bay; between Cebu - Leyte; between Cebu - Bohol; north Mindanao; between Cebu - Siquijor; 83 to 312 fathoms).

Hymenocephalus striatissimus aeger Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 531, fig. 32, 1920 (type locality : between Gillolo - Kayoa; between Gillolo - Makyan; Sibuko Bay, Borneo; 38 to 310 fathoms; Jolo; between Jolo - Tawi Tawi; north Tawi Tawi; 186 to 318 fathoms).

Depth 7 1/5 to 8; head 5 3/4 to 5 4/5, width 1 3/4 to 1 4/5. Snout 4 1/2 to 5 1/5 in head, 1 1/2 to 2 in eye; eye 2 1/2 to 3 1/8 in head; preoral length 5 1/5 to 5 1/2; maxillary reaches 3/4 to 4/5 in eye, length from front end 1 2/3 to 1 3/4 in head; mandibular barbel feeble, 1/4 of eye; teeth minute, in narrow villiform bands in jaws, lower narrower; interorbital 3 1/2 in head, low, cavernous, irregularly concave. Gill rakers 4 + 17 short clavate spinescent tubercles on second arch, 2/5 of gill filaments, which 1/4 of eye.

Scales all fallen and pockets little distinct so squmation not made out; 4? above lateral line.

D. II, 8 or II, 9--120, second simple ray slender, length 1 1/5 to 1 2/5 in head; interorbital space 1 2/5 to 1 3/5; A. 110, fin height 2 2/3; pectoral fin rays I, 13, fin 1 4/5 in head, first ray filamentous.

Light brown. Sides of head and trunk silvery white. Under surface of head and belly grayish. Within gill opening outer faces of isthmus with numerous fine parallel close set vertical striaw, over gray or coppery gray. Breast coppery and conspicuous round white blotch before each ventral fin base, last of which strongly contrasted blackish brown. Striated area from within gill opening also extended back on upper side of chest and then continuous over belly behind ventral fin bases. Median dark pit before ventral bases with small lens-like body. Black ring around vent. Fins all paler or lighter than body. Iris whitish or silvery.

East Indies, Philippines, Japan. A strongly marked species, easily known by its peculiar striated surfaces of the isthmus, sides of breast and belly, in combination with its contrasted coloration.

U. S. N. M., No. 50934. Entrance to Port Heda, N.84°E1.2 miles, off Honshu Island, Japan. In 167 fathoms. May 17, 1900. Albatross Collection (D.3738). Length 113 mm. Type of Hymenocephalus striatissimus. Also paratype, same data, 100 mm long.

U. S. N. M., No. 72927. Jolo Light(Jolo), N.77°E., 14.9 miles (lat. 6°00'20"N., long. 120°45'35"E.), Jolo Island. In 232 fathoms. September 17, 1909. Albatross Collection (D.5548). Length 158 mm. Type of Hymenocephalus torvus.

U. S. N. M., No. 77236.

Albatross Collection (D.4967). Length 128 to 155 mm. 8 examples

U. S. N. M., No. 77237.

Albatross Collection (D.5059). Length 162 mm.

U. S. N. M., No. 77238.

Albatross Collection (D.4966). Length 168 mm.

U. S. N. M., No. 77239.

Albatross Collection (D.4897). Length 157 mm.

U. S. N. M., No. 78228. Makyan Island (S.), N.54°W., 3 miles (lat. 0°15'00"N., long. 127°24'35"E.), between Gillolo and Makyan Islands. In 298 fathoms. November 28, 1909. Albatross Collection (D.5621). Length 142 mm. Type of Hymenocephalus striatissimus aeger.

Hymenocephalus striatulus Gilbert

Hymenocephalus striatulus Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 665, fig. 259, 1903 (1905) (type locality : off south west Oahu, 192 to 352 fathoms; Kauai, 55 to 362 fathoms). — Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 521, 1920 (diagnosis in key). —Fowler, Mem. Bishop Mus., vol. 10, p. 87, 1928 (Hawaiian Islands).

Depth 7 to 7 2/5; head 4 4/5 to 5 1/5, width 2. Snout to eye 3 1/2 to 3 4/5 in head, 1 1/5 to 1 1/3 in orbit; eye 3 1/3 to 3 3/5 in head, 1 in snout, 1 to 1 1/8 times interorbital; orbit 3 in head; preoral profile oblique, length 5 1/3 to 5 1/2; maxillary reaches opposite hind edge of orbit, length from front end 1 4/5 to 2 in head; no barbel; teeth minute, in narrow bands in jaws, lower band narrower; interorbital 3 1/5 to 4 in head, low, depressed irregularly. Gill rakers 5 + 19 short clavate spinuliferous tubercles on second arch, 1/2 of gill filaments, which 1/4 of orbit.

Scales (pockets) 68 in lateral line; 4 above, 5 below, 8 predorsal forward opposite hind eye edge. Scales with 13 or 14 irregular series of short apical spinules, last not reaching beyond scale edge; circuli moderate, complete.

D. II, 9 to II, 11—70, second simple ray entire, slender, 1 2/5 in head; interdorsal space 1 1/2 to 1 2/3; A. 80, fin height 3 1/5 to 3 1/2; pectoral rays I, 14 or I, 15, fin 1 3/5 to 1 3/4 in head; ventral I, 13 or I, 14, fin 1 1/5 to 1 1/4, first ray ending in

filament.

Brown, with gray over abdomen and neutral black on mandible below, breast, chest and belly. Head posteriorly on sides, trunk and tail, with numerous scattered dark dots or specks. Silvery or silver gray tints on lower side of trunk. Iris gray or silver gray. Inside mouth pale or with gray. Inside gill opening pale or whitish, with only some dark gray tints marginally or above. Fins pale or lighter than body.

Hawaiian Islands. A slender, trim, compact species, with rather obscure pale coloration.

U. S. N. M., No. 51611. Barbers Point Light, N.82°E.2.2', south west coast of Oahu. In 192 to 352 fathoms. July 26, 1902. Albatross Collection (D.4122). Length 140 mm. Type of Hymenocephalus striatulus.

U. S. N. M., No. 51683.

Albatross Collection.

Length 67 to 124 mm. 9 examples.

U. S. N. M., 2 examples. Lat. 21°13'N., long 157°43'37"W., Hawaiian Islands. In 310 fathoms. December 3, 1891. Albatross Collection (D.3467). Length 77 to 125 mm.

Hymenocephalus tenuis Gilbert and Hubbs

Hymenocephalus tenuis Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 54, p. 173, 1917 (type locality : off southern Oahu, 265 to 280 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 519 (520), 1920 reference).

Hymenocephalus striatulus (part) Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 665, 1903 (1905). Diamond Head Light, N.74°E.8.9', south coast of Oahu, 265 to 280 fathoms).

U. S. N. M., No. 78177. Diamond Head Light, N.74° E.8.9', south coast of Oahu. In 265 to 280 fathoms May 6, 1902. Albatross Collection (D.3920). Length 75 mm. Type.

Genus Malacocephalus Günther

Malacocephalus Günther, Cat. Fishes Brit. Mus., vol. 4, p. 396, 1862.

(Type Macrurus laevis Lowe, monotypic.)

Body compressed, with short trunk and slender tapering tail. Head moderate. Snout short, obtuse, obliquely truncate. Mouth terminal, inferior, wide, upper jaw less than 1/3 of head. Upper teeth biserial, lower uniserial. Mandibular barbel present. No prominent ridges on head, muciferous cavities wide. Gill membranes broadly united, free from isthmus. Gills 4, slit behind fourth. Gill rakers tubercular, less than 15. No pseudobranchiae. Branchiostegals 7. Pyloric coeca very numerous, greatly branched. Scales small or minute, bristly or ctenoid, much deeper than long. Whole head scaly. Lateral line begins at upper angle of gill opening. First dorsal over pectoral origin, longest spine-like ray smooth. Dorsals usually widely separated. Anal more developed than second dorsal. Pectoral short, high, opposite upper angle of gill opening. Vent well before anal fin, at end of naked oval which separated by narrow scaly stripe of skin from similar naked area below ventral fin bases, though both naked areas wanting in young.

Species few, tropical or subtropical.

Malacocephalus hawaiiensis Gilbert

Malacocephalus hawaiiensis Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 677, fig. 265, 1903 (1905) (type locality : off south coast of Oahu; Pailolo Channel; Bird Island; Kauai; Maui; north west Oahu; 165 to 684 fathoms). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 542, 1920 (measurements of paratypes). —Fowler, Mem. Bishop Mus., vol. 10, p. 87, 1928 (Hawaiian Islands).

Malacocephalus laevis (not Linnaeus) Gilbert and Cramer, Proc. U. S. Nat. Mus., vol. 19, p. 432, 1897 (Hawaiian Islands, 295 to 351 fathoms).

Depth 7 to 7 1/5; head 5 to 6, width 1 3/4 to 1 7/8. Snout to eye 3 1/2 to 4 in head; eye 3 1/8, 1 1/8 in snout, 1 1/8 in interorbital; orbit 3 1/4 in head, 1 1/8 in snout, 1 1/8 in interorbital; maxillary reaches 3/4 to 4/5 in eye, length from front end 2 to 2 1/8 in head; preoral vertically oblique in profile, length 4 to 5 in head; mandibular barbel 1 1/4 to 1 2/5 in eye; teeth in villiform bands in jaws, each with strong outer row of curved or enlarged canines; interorbital 3 1/4 to 3 1/2 in head, low, widely or slightly convex. Gill rakers 2 + 7 short knobs on second arch, 1/3 of gill filaments, which 1/2 of eye.

Scales 285? in lateral line to end of broken tail, of which 25 forward of vent; 15 above, 47 below, 58 predorsal. Scales adherent, finely denticulate or velvety to touch, equally large on head as on body. Scales with rather large patch of irregular though numerous small spines; circuli moderate.

D. II, 11 or II, 12--190? (to end of broken tail), second simple ray slender, smooth, 1 2/5 to 1 4/5 in head; interdorsal space 1 1/3 to 1 3/4; A. 194 (to end of broken tail), fin rather low though nearly twice as high as very low second dorsal; pectoral rays I, 18 or I, 19, fin 2 to 2 1/4 in head; ventral rays I, 8, fin (damaged) 2 4/5 to 3 7/8.

Brown, sides of head and costal region with slight silvery tint. Iris pale or brassy. Inside mouth brown and gill opening blackish. Fins brownish, ventrals little darker and like dark neutral tint of breast and belly below.

Hawaiian Islands.

U. S. N. M., Nos. 49519 to 49521. Lat. 21°12'N., long. 157° 49'W., Hawaiian Islands. In 295 fathoms. December 4, 1891. Albatross Collection (D.3472). Length 320 to 590 mm. 4 examples.

U. S. N. M., No. 51618. Diamond Head Light, N.23°E.9.6', south coast of Oahu. In 304 to 315 fathoms. May 5, 1902. Albatross Collection (D.3907). Length 365 mm to end of broken tail. Type.

U. S. N. M., No. 51707.

Length 247 to 390 mm. 16 examples.

Malacocephalus laevis (Lowe)

Macrourus laevis Lowe, Proc. Zool. Soc. London, p. 92, 1843 (type locality : Madeira). —Johnson, Ann. Mag. Nat. Hist., ser. 3, vol. 10, p. 171, 1862 (Madeira)

Macrurus laevis Günther, Rep. Voy. Challenger, vol. 22, p. 148, pl. 39, fig. b, 1887 (off Pernambuco, 350 fathoms). —Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 8, p. 123, 1891 (Laccadive Sea, 188 to 220 fathoms). —Smitt, Scandinav. Fishes, vol. 2, p. 593, fig. 141, 1895 (Skaw-Lysekil [dropped by seagull on shore]).

Macrurus loevis Köhler, Ann. Univ. Lyon, vol. 26, p. 492, 1896 (Gulf of Gascony, 400 to 700 meters).

Macrurus (Malacocephalus) laevis Alcock, Cat. Deep Sea Fishes Ind. Mus., p. 119, 1899 (Andaman Sea; Arabian Sea; 188 to 719 fathoms) —Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 270 (391), 1906 (Bengal Bay; east coast Africa; 362 to 977 meters). —Murray and Hjort, Depths of the Ocean, p. 398, 1912 (off Morocco, 535 meters).

Malacocephalus laevis Günther, Cat. Fishes Brit. Mus., vol. 4, p. 397, 1862 (type; Madeira). —Moreau, Poiss. France, vol. 3, p. 284, 1881 (Nice). —Hilgendorf, Archiv Naturg., p. 211, 1889 (Azores). —Carus, Prodr. Medit., vol. 2, p. 583, 1893 (compiled). —Goode and Bean, Oceanic Ichth., p. 415, 1895 (copied). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). —Weber, Siboga Exped., vol. 57, p. 166, 1913 (Flores Sea; Macassar Strait; Molucca Strait; 397 to 694 meters). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 543, 1920 (note). —Barnard, Ann. South African Mus., vol. 21, pt. 1, p. 344, June 1925 (off Cape Point and East London, 250 to 450 fathoms). —Waite, Rec. South Austral. Mus., vol. 3, p. 229, 1927 (Great Australian Bight). —McCulloch, Austral. Mus. Mem., vol. 5, pt. 1, p. 126, June 29, 1929 (compiled).

—Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 62, fig. 13, 1929 (Weber's material).

Malacocephalus luzonensis Gilbert and Hubbs

Malacocephalus luzonensis Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 541, fig. 35, 1920 (type locality : off western Luzon; southern Luzon; eastern Luzon; 172 to 270 fathoms).

Genus Ventrifossa Gilbert and Hubbs

Ventrifossa Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 543 (544), 1920. (Type Coryphaenoides garmani Jordan and Gilbert, orthotypic.)

Atherodus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 544, 1920. (Type Optonurus atherodon Gilbert and Cramer, orthotypic.)

Lucigadella Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 544 (552), 1920. (Type Macrourus nigromarginatus Smith and Radcliffe, orthotypic.)

Lucigadus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 545 (553), 1920. (Type Macrourus lucifer Smith and Radcliffe, orthotypic.)

Body compressed. Head moderate, compressed. Snout short, broadly triangular as seen above, front profile subvertical and not projecting much before front border of mouth, without enlarged median or lateral tubercles. Eye advanced, circular or slightly oval. Mouth rather large, subterminal, upper jaw more than 1/3 of head reaches to middle of or behind eye. Mandibular barbel present. Villiform teeth in bands in jaws, outer upper row more or less enlarged. Gill membranes united below orbit, scarcely joined to isthmus. Gill rakers 13 to 15 short spinescent tubercles on second arch. Branchiostegals 7, rarely 6, Scales imbricate, covered with spinules, arranged in parallel rows or quincunx order. Two lens-like organs, front one before ventrals and posterior longer in naked area immediately before vent, present or not. Lateral canal system well developed. First dorsal, pectoral and ventral, nearly in same vertical. Second simple ray of first dorsal fin with strong or obsolete row of spinules along its front edge. Anal origin below end of first dorsal.

Tropical and subtropical deep seas.

Ventrifossa ctenomelas (Gilbert and Cramer

Chalinura ctenomelas Gilbert and Cramer, Proc. U. S. Nat. Mus., vol. 19, p. 430, pl. 45, fig. 2, 1897 (type locality : Hawaiian Islands, 295 to 343 fathoms). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). —Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 662, 1903 (1905) (Pailolo Channel; off south Oahu; Kauai; Maui; 192 to 368 fathoms).

Macrurus (Chalinura) ctenomelas Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 390, 1906 (reference).

Lionurus ctenomelas Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1915 (reference).

Ventrifossa ctenomelas Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 544, 1920 (diagnosis in key). —Fowler, Mem. Bishop Mus., vol. 10, p. 87, 1928 (Hawaiian Islands).

Depth 5 to 7; head 5 to 5 1/2, width 2 to 2 1/8. Snout to eye 3 1/5 to 3 1/3 in head; eye 4, 1 1/8 to 1 1/5 in snout, slightly greater than interorbital; orbit 3 1/8 to 3 1/3 in head, 1 1/5 times snout, 1 1/5 to 1 1/2 times interorbital; preoral length short, 1 2/3 to 2 1/4 in orbit; mandibular barbel 3 3/5 to 4 in head; teeth above in villiform band of 4 or 5 irregular rows and outer enlarged row, below in narrow band of 2 or 3 close set irregular rows, of which larger ones intermixed; interorbital 4 1/2 to 4 3/5 in head, low, nearly level. Gill rakers 2 + 13 low spinescent tubercles on second arch, 1/2 of gill filaments, which 3 1/2 in orbit.

Scales 150 in lateral line to pseudocaudal; 11 above, 19 or 20? below, 47? predorsal forward to front of snout of which 25 forward opposite hind edge of orbit. Scales with 20 irregular parallel horizontal rows of long slender spinules, last well extended beyond hind scale edge; circuli moderate, complete.

D. II, 10 or II, 11__144, second simple ray slender, with row of fine close-set antrorse spinules along front edge, length 1 1/3 to 1 2/3 in head; interdorsal space 1 3/4 to 1 4/5; A. 138, fin height 4 1/3 to 5; pectoral rays I, 21, fin 1 2/3 to 2 in head; ventral rays I, 6 or I, 7, fin 2 3/4 to 3 1/8 in head.

Brown, with silvery white tints along lower side, line of demarcation from back distinct. Iris gray to whitish. Mandible below, branchiostegal region, chest, breast and belly more or less neutral black. Inside mouth pale or light. Inside gill opening blackish brown, deep inside whitish. Fins more or less brown, darker terminally and ventrals nearly blackish.

Hawaiian Islands. Characteristic is the dark brown coloration with overlaid grayish to whitish silvery reflections of the lower half of the body. Though the chest and belly often blackish they also frequently show a coppery or even grayish tint. Snout short, obtuse and fins in young often pale with dark or dusky subterminal area on first dorsal.

U. S. N. M., No. 47704.

Albatross Collection (D.3470). Length 194 mm. Type.

U. S. N. M., No. 47713.

Albatross Collection (D.3472). Length 120 to 190 mm. 3 examples.

U. S. N. M., No. 55237.

Length 120 to 297 mm. 10 examples.

U. S. N. M., No. 55238.

Length 137 to 258 mm. 23 examples.

U. S. N. M., No. 55239.

Length 203 to 260 mm. 3 examples.

Ventrifossa divergens Gilbert and Hubbs

Ventrifossa divergens Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (544) 549, fig. 37, 1920 (type locality : Sibuko Bay, Borneo; China Sea near Hong Kong; north Luzon; north west Panay; south west Luzon; east Luzon; between Gillolo - Makyan; 100 to 422 fathoms). —Barnard, Ann. South African Mus., vol. 21, pt. 1, p. 346, June 1925 (off East London, 540 to 720 meters). — Weber and Beaufort, Fishes Indo Austral. Archip., vol. 6, p. 69, 1929 (compiled).

Depth 6 1/4; head 5 3/5, width 2 1/10. Snout 3 3/4 in head; eye 3 3/4, subequal with snout or interorbital; maxillary reaches 4/5 in eye, length from front end 2 1/5 in head; mandibular barbel slender, length 3 2/5; teeth minute, uniform, simple, villiform, of 8 irregular series above and 3 or 4 below; preoral length 1 4/5 in eye; interorbital 4 1/5 in head, low, nearly level. Gill rakers 2 + 13 to 15 short robuts knobs on second arch, 2/5 of gill filaments, which 3 in eye.

Scales 175 in lateral line, of which 4 or 5 in advance of vent; 8 above, 18 below, 42 predorsal. Scales rather firmly adherent, large on cheek as on body, small and finely bristly on muzzle and lower surface of head. Scales without striae, apically with quincunx area of fine spinules; circuli fine.

D. II, 9 to II, 11__140, front edge of second simple ray finely denticulate, length 1 2/5 in head; interdorsal space 1 4/5; A.

143, front rays highest and fin much higher than second dorsal; no pseudocaudal; pectoral I, 18 to I, 22, fin 1 2/5 in head; ventral rays I, 7 to I, 8, fin 2 1/4 in head, first ray ending in short filament.

Pale brown generally, with silvery to pale leaden gray tints on sides of head and body. Under surface of head, breast and belly dark neutral gray to blackish. Iris pale gray. Inside mouth white, inside gill opening dusky to blackish. Fins brownish, base of pectoral and all of ventral fins dusky to blackish.

East Indies.

U. S. N. M., No. 78230. Lat. 4°12'44"N., long. 118°27'44" E., Sibuko Bay, Borneo. In 305 fathoms. Albatross Collection (D), Length 270 mm. Type.

Ventrifossa garmani (Jordan and Gilbert)

Coryphaenoides garmani Jordan and Gilbert, Bull. U. S. Fish Comm., vol. 22, p. 610, fig. , 1902 (Aug. 1904) (type locality : Sagami Sea).

—Franz, Abhandl. Kon. Bayer. Akad. Wiss., vol. 4, Suppl. Band 1, p. 26, 1910 (Sagami Bay). —Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 416 (fig. 386 copied), 1913 (compiled). —Jordan and Thompson, Mem. Carnegie Mus., vol. 6, No. 4, p. 306, Sep. 1914 (Boshu; Misaki).

Lionurus garmani Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (145) 193, 1916 (Eastern Sea; Kii Channel; off Matsushima; Suruga Gulf; Sagami Bay; 108 to 369 fathoms).

Ventrifossa garmani Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 544, 1920 (diagnosis in key).

Depth 6 1/5 to 7 1/2; head 5 to 5 1/2, width 1 4/5 to 2. Snout to eye 2 3/5 to 3 2/3 in head; eye 2 3/4 to 4 1/4, greater than snout to 1 1/4 in snout, 1 1/5 in interorbital; orbit 3 4/5 in head, 1 in snout, slightly greater to 1 in interorbital; maxillary reaches eye center, length from front end 2 1/8 to 2 1/4 in head; mandibular barbel 1 to 1 1/3 in orbit; teeth in villiform bands in jaws, of 4 to 6 irregular series; interorbital 3 1/4 to 3 4/5 in head, low, nearly level forward. Gill rakers 2 + 13, low spinescent tubercles, 1/2 of gill filaments, which 3 1/2 in eye.

Scales 123 in lateral line to end of broken tail; 8 above, 18? below, 23 predorsal forward opposite hind edge of orbit. Scales with 5 radiating rows of short wide set spines apically, none extending beyond hind edge of scale; circuli moderate, complete.

D. II, 10__115?, second simple ray pungent, with row of fine inconspicuous antrorse serrae along front edge, length 1 1/4 to 1 2/5 in head; interdorsal space 1 3/5 to 2; A. 122, fin height 4; pectoral rays I, 19, fin 1 4/5 to 2 1/5 in head; ventral rays I, 7, fin 2 1/2 to 2 7/8 in head.

Brown, with silvery white tints, especially on sides of head and gill opening dusky to neutral black, also belly and chest. Iris silvery white. Inside mouth white. Gill opening blackish inside. Fins all more or less pale brown.

Japan. A. fragile species, the preserved specimens rarely with much squamation and the fins usually damaged. The sides usually burnished with silvery to silvery gray.

U. S. N. M., No. 50933.

May 4, 1900.

Albatross Collection (D.3695). Length 268 mm.

U. S. N. M., No. 51415.

Albatross Collection (D.3738). Length 85 to 250 mm. 9 examples. Paratypes.

U. S. N. M., No. 76876.

Albatross Collection (D.4966). Length 105 mm.

U. S. N. M., No. 76877.

Albatross Collection (D.4967). Length 86 to 98 mm. 2 examples

U. S. N. M., No. 76878.

In 129 fathoms. October 10, 1906. Albatross Collection (D.5048). Length 88 mm.

U. S. N. M., No. 76879.

Albatross Collection (D.5069). Length 113 mm.

U. S. N. M., No. 76880.

Albatross Collection (D.5088). Length 110 mm.

U. S. N. M., No. 77204.

Albatross Collection (D.5059). Length 255 to 280 mm. e examples.

U. S. N. M., No. 77205.

Albatross Collection (D.4967). Length 212 to 238 mm. 3 examples.

U. S. N. M., No. 77206.

Albatross Collection (D.4968). Length 270 mm, largest of 6 examples all in poor preservation.

U. S. N. M., No. 77207.

Albatross Collection (D.5060). Length 250 mm.

U. S. N. M., No. 77208.

Albatross Collection (D.5066). Length 233 mm.

U. S. N. M., No. 77209.

Albatross Collection (D.5054). Length 258 mm.

U. S. N. M., No. 77210.

Albatross Collection (D.5065). Length 222 mm.

U. S. N. M., No. 77211.

In 250 fathoms. October 13, 1906.

Albatross Collection (D.5062). Length 193 to 207 mm. 2 examples.

U. S. N. M., No. 77212.

In 361 fathoms. August 13, 1906.

Albatross Collection (D.4917). Length 250 mm.

U. S. N. M., No. 77213.

Albatross Collection (D.5072). Length 200 mm.

Ventrifossa macronema (Smith and Radcliffe)

Macrourus macronemus Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 115, pl. 24, fig. 3, 1912 (type locality : lat. 9°34'54"N., long. 121°12'37"E., near Cagayan, Jolo Sea, 340 fathoms).

Lionurus macronemus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference).

Ventrifossa macronemus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 545, 1920 (south west Luzon; Jolo Sea; between Siquijor - Bohol; 340 to 439 fathoms).

Depth 7; head 6 1/4, width 2 1/5. Snout 3 1/2 in head; eye 3 4/5, 1 in snout, slightly greater than interorbital; maxillary reaches 4/5 in orbit, length from front end 2 1/8 in head; mandibular barbel 4/5? of orbit; teeth in 6 irregular rows with outer upper enlarged row, close-set, slender, lower more uniform or none enlarged; interorbital 4 in head, low, apparently more or less level. Gill rakers 1 + 8 low spinescent tubercles, 1/3 of gill filaments, which 2 2/5 in eye.

Scales 210 in lateral line; 13 above, 27 below, 27 predorsal forward opposite hind eye edge. Scales with 17 to 23 close-set rows of rather long slender apical spinules, last extended well beyond hind scale edge; circuli moderate, not extended apically.

D. II, 8__200?, second simple ray slender, front edge with row of antrorse spinules, 1 1/8? in head; interdorsal space about

equals orbit; A. 160?, fin height 3? in head; pectoral rays I, 20, fin 1 3/4 in head; ventral rays I, 10, fin 1 1/4.

Uniform dark brown. Inside mouth and gill opening blackish brown. Iris blackish brown. Fins all more or less blackish brown.

Philippines.

U. S. N. M., No. 72931. Cagayan Island (S.), S.11°W., 3.4 miles (lat. 9°34'05"N., long 121°12'37"E.), Jolo Sea. In 340 fathoms. March 31, 1909. Albatross Collection (D.5424). Length 317 mm. Type of Macrourus macronemus.

Ventrifossa lucifer (Smith and Radcliffe)

Macrourus lucifer Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 113, pl. 24, fig. 1, 1912 (type locality : near Point Tagolo, Mindanao, 175 fathoms).

Lionurus lucifer Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 51, p. 145, 1916 (reference).

Ventrifossa lucifer Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (545) 553, 1920 (south west Luzon; north Mindanao; 170 to 182 fathoms).

Ventrifossa misakia (Jordan and Gilbert)

Coryphaenoides misakius Jordan and Gilbert, Bull. U. S. Fish Comm., vol. 22, p. 611, fig., 1902 (Aug. 1904) (type locality : Sagami Bay near Misaki). —Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 415 (fig. 385 copied), 1913 (compiled). —

Jordan and Thompson, Mem. Carnegie Mus., vol. 6, No. 4, p. 306, 1914 (Misaki).

Lionurus misakius Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (145) 194, 1916 (no locality).

Ventrifossa misakius Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (544) 545, 1920 (off south east Luzon, 383 fathoms).

Macrourus asper (not Günther) Jordan and Thompson, Mem. Carnegie Mus., vol. 6, No. 4, p. 306, pl. 38, fig. 2, 1914 (Misaki).

Depth 5 2/3 to 6 3/4; head 4 1/3 to 4 2/5, width 1 4/5 to 2 1/5. Snout to eye 3 3/5 to 3 7/8 in head; eye 3 7/8 to 5, 1 1/5 to 1 2/5 in snout, 1 1/5 to 1 1/4 in interorbital; orbit 3 1/4 to 3 3/4 in head, 1 1/5 to 1 1/4 times snout, 1 to 1 1/5 times interorbital ; preoral length 1 1/3 to 1 3/5 in orbit, oblique; maxillary 2/3 to 3/4 in orbit, length from front end 2 2/5 to 3 in head; mandibular barbel 4 1/5 to 5 in orbit; teeth fine, small, in 3 or 4 irregular rows in jaws, with outer row slightly enlarged; interorbital 3 4/5 to 4 in head,

low. Gill rakers 2 + 12, low spinescent tubercles on second arch, 1/2 of gill filaments, which 3 3/4 in orbit.

Scales 227 in lateral line, small, adherent; 12 or 13 above, 30 below, 58 predorsal to snout end of which 24 forward opposite hind edge of orbit. Scales with 10 or 11 irregular somewhat horizontal apical rows of long slender spinules, last extended well beyond hind edge of scale; circuli moderate, complete.

D. II, 10 or II, 11--143, second simple ray slender, with row of fine close-set antrorse spinules along front edge, length 2 to 2 2/3 in head; interdorsal space 2 1/4 to 2 2/5; A. 157, fin height 4 1/5 to 5 1/5, pectoral rays I, 18, fin 1 7/8 to 2 in head; ventral rays I, 7, fin 2 3/4 to 3 1/8 in head.

Uniformly brownish, lower surfaces of head and trunk darker. Iris dark gray. Inside mouth pale. Inside gill opening blackish brown, paler deep inside. Fins brown.

Philippines, Japan. Jordan and Gilbert have noted this species in their original description as "strongly resembling Malacocephalus laevis and hawaiiensis" though their figure of C. misakius fails in showing the front edge of the second simple dorsal ray entire, though their description says "second dorsal spine finely serrulated throughout, except for a very short distance at base and tip."

U. S. N. M., No. 51421.

Length 207? to 390 mm. 4 examples. Paratypes.

Ventrifossa nigrodorsalis Gilbert and Hubbs

Ventrifossa nigrodorsalis Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (544) 546, fig. 36, 1920 (type locality : northern coast of Mindanao; vicinity Formosa; south Luzon; east Mindoro; Jolo; west Bohol; between Marinduque - Luzon; north west Panay; Palawan Passage; Balayan Bay; Marinduque; between Burias-Luzon; Dupon Bay; between Cebu - Leyte; east Luzon; north Mindanao; between Cebu - Siquijor; between Negros - Siquijor; Sibuko Bay, Borneo; between Gillolo - Makyan; between Gillolo - Kayoa; 159 to 415 fathoms). Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 68, 1929 (compiled).

Ventrifossa nigromarginata (Smith and Radcliffe)

Macrourus nigromarginatus Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 114, pl. 24, fig. 2, 1912 (type locality : near Simulac Island, 303 fathoms).

Ventrifossa nigromarginatus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. (544) 552, 1920 (Jolo; west Bohol; south east Mindoro; south west Luzon; between Burias - Luzon; between Cebu - Bohol; north Mindanao; between Siquijor - Bohol; between Johol - Tawi Tawi; north Tawi Tawi; Darvel Bay, Borneo; Flores Sea; 145 to 392 fathoms).

Ventrifossa nigromarginata Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 66, 1929 (compiled).

Lionurus nigromaculatus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, 1916, p. 145, 192 (name only; error).

Ventrifossa occidentalis (Goode and Bean)

Malacocephalus occidentalis Goode and Bean, Proc. U. S. Nat. Mus., vol. 8, p. 597, 1885 (type locality : lat. 35°44'N., long. 74°51'W., off Cape Hatteras, 132 fathoms; off Grenada, 164 fathoms). —Günther, Rep. Voy. Challenger, vol. 22, p. 134, 1887 (reference). —Goode and Bean, Oceanic Ichth., p. 415, 1895 (copied). —Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p. 2570, 1898 (copied). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference).

Chalinura occidentalis Goode and Bean, Oceanic Ichth., p. 413, 1895 (off Grenada; lat. 35° to 44°N., long. 57° to 74°W., 132 or 133 fathoms).

Macrurus (Chalinura) occidentalis Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 390, 1906 (reference).

Lionurus occidentalis Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 145, 1916 (reference).

Ventrifossa occidentalis Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 544, 1920 (diagnosis in key).

Depth 6 1/2 to 7 (to end of broken tail); head 6 1/4 to 6 1/2, width 1 1/2 to 2. Snout 3 2/3 to 4 1/5 in head; eye 2 4/5 to 2 7/8, greatly exceeds snout or interorbital; maxillary reaches opposite hind eye edge, length from front end 1 4/5 to 1 7/8 in head; preoral vertically oblique in profile, length 4 2/3 to 6 1/5 in head; mandibular barbel 2 1/5 to 2 3/5; teeth in villiform bands in jaws, with outer row of larger, well spaced, curved, pointed teeth, in lower jaw smaller; interorbital 3 1/2 to 4 1/4 in head, low, nearly level. Gill rakers 2 + 8 short low knobs on second arch, nearly 2/5 gill filaments, which 1/3 of eye.

Scales all fallen, only indistinct pockets remaining, evidently of quite small size. Only few small scales remaining on breast, which finely rugose.

D. II, 9? or II, 10?, soft fin not made out, second simple ray with at least series of 4 low antrorse points well spaced terminally; interdorsal space 2 to 2 1/4 in head; A. 154? to end of broken tail, fin rather low, height nearly equals eye; pectoral rays I, 20, fin 2 3/5? in head; ventral rays I, 8, broken off short.

Brown, sides of head, body and tail burnished with silvery white. Iris pale or whitish. Inside mouth pale and gill openings dark brown. Fins all pale brownish or tinged with brassy, not dark.

Gulf Stream, West Indies.

U. S. N. M., No. 37336. Lat. 35°44'N., long 74°51'W. In 32 fathoms. Albatross Collection (D.2310). Length 154 to 187? mm. In poor preservation. 2 examples. Type and paratype.

U. S. N. M., No. 44645.

Albatross Collection

Length 123 mm. Depth 7 3/4; head 7 1/4, width 2 1/4. Snout 4 in head; eye 2 1/2; maxillary reaches 2/3 in eye, length from front end 2 in head; mandibular barbel 2 1/4; interorbital 3 4/5. Gill rakers 2 + 8 short spinescent tubercles on second arch.

Ventrifossa petersonii (Alcock)

Macrurus petersonii Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 8, p. 121, 1891 (type locality : lat. 11°31'40"N., long 92°46'40"E., Andaman Sea, 188 to 220 fathoms) Journ. Asiatic Soc. Bengal, vol. 58, pt. 1, p. 127, 1894 ( ); Illustrat. Zool. Investigator, pt. 1, pl. 3, fig. 5, 1892. —Goode and Bean, Oceanic Ichth., p. 390, 1895 (reference).

Macrurus petersoni Garman, Mem. Mus. Comp. Zool., vol. 24, p. 396, 1899 (reference). —Weber, Fishes Indo Austral. Archip., vol. 57, p. 156, 1913 (Madura Sea; Flores Sea; Arafura Sea; Banda Sea; Macassar Straits; 289 to 4391 meters).

Macrurus (Macrurus) petersoni Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 260 (388), 1906 (west coast Sumatra; Nicobars; east coast Africa; 296 to 1019 meters).

Ventrifossa petersonii Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 544, 1920 (diagnosis in key).

Ventrifossa petersoni Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 67, 1929 (Weber's material).

Macrurus hispidus Alcock, Ann. Mag. Nat. Hist., ser. 6, vol. 4, p. 397, 1889 (type locality : Bengal Bay between north and south Sentinal Islands, 220 to 240 fathoms); Illustrat. Zool. Investigator, pt. 2, pl. 13, fig. 2, 1894.

Chalinura hispida Goode and Bean, Oceanic Ichth., p. 412, 1895 (reference). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference).

Genus Lionurus Günther

Lionurus Günther, Rep. Voy. Challenger, vol. 22, pp. 124, 141, 1887. (Type Coryphaenoides (Lionurus) filicauda Günther, designated by Jordan, Genera of Fishes, pt. 4, p. 437, 1920.)

Nezumia Jordan, in Jordan and Starks, Bull. U. S. Fish Comm., vol. 22, p. 620, 1902 (Agu. 1904). (Type Nezumia condylura Jordan and Gilbert, monotypic.)

Body usually slender, tail not rapidly tapering. Head not very massive. Snout moderately extended, not greatly widened or high. Bones of head firm, sensory canals moderately developed and skull without high crests. Gill rakers less than 15 on lower limb of second arch. Branchiostegals 7. Scales small, well imbricated, spinules usually directed backward. Dorsal spine (second simple ray) trenchant on front edge, usually serrate. Vent distinct from anal fin, preceded by naked area.

A large genus of tropical or subtropical seas. Size usually small, less than 400 mm in length.

Lionurus brevibarbatus Barnard

Lionurus brevibarbatus Barnard, Ann. Mag. Nat. Hist., ser. 9, vol. 15, p. 503, 1925 (type locality : off Cape Point, 300 to 950 fathoms); Ann. South Afr. Mus., vol. 21, pt. 1, p. 349, June 1925 (types).

Lionurus cetonuropsis Gilbert and Hubbs

Lionurus cetonuropsis Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (146) 202, pl. 11, fig. 1, 1917 (type locality : off east coast of Hondo, 918 fathoms).

Depth 7 1/2? (tail broken in two); head 6?, width 2 1/5. Snout 3 in head; eye 5, 1 3/4 in snout, 1 3/4 in interorbital; maxillary reaches 1/2 in eye, length from front end 4 1/5 in head; preoral length in profile 4; barbel slender, 3 in eye; teeth in villiform bands in jaws, of 4 or 5 irregular series and outer premaxillary row slightly larger; interorbital 3 1/4 in head, low, depressed or concave medially. Gill rakers 0 + 9 low robust spinescent knobs on second arch, 1/3 of gill filaments, which 1/3 of eye.

Scales 180? in lateral line, of which 9 forward of vent; 11 above, 20 below, 43? predorsal. Scales largely fallen, more or less uniformly small and finely spinescent, less defined but more spinescent on muzzle. Scales without striae; apically group of 12 or more partly erect slender spinules; circuli moderate.

D. II, 9__152?, first simple ray with few wide-set low spinules along front edge and end filamentous, at least 1 2/5 in head; interdorsal space 3; A. 127?, fin much higher than second dorsal; no distinct pseudocaudal and end of tail broken off; pectoral rays I, 17, fin 1 7/8 in head; ventral rays I, 5, fin 3 1/2.

Brown, little paler on head, especially anteriorly. Opercular region, breast and belly dark neutral gray or chocolate. Iris grayish. Inside mouth and gill opening blackish. Fins brownish, ventrals darker.

Japan. According to its describers closely related to Lionurus parvipes. Only known from the type, described above, and a small specimen said to measure but 20 mm to vent and be in poor preservation.

U. S. N. M., No. 76869.

In 918 fathoms.

Albatross Collection (D.5084). Length 268 mm. Type.

Lionurus condylura (Jordan and Gilbert)

Nezumia condylura Jordan and Gilbert, Bull. U. S. Fish Comm., vol. 22, p. 620, pl. 4, fig. 2, 1902 (Aug. 1904) (type locality: Suruga Bay, Japan, 207 to 257 fathoms; Suruga and Sagami Bays; 110 to 265 fathoms). —Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, p. 413 (fig. 384 copied), 1913 (compiled).

Lionurus condylura Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (145) 195, 1916 (Bungo Channel; Kii Channel; Suruga Gulf; Sagami Bay; 197 to 437 fathoms).

Depth 6 3/4 to 8; head 5 4/5 to 6 3/5, width 2 to 2 1/8. Snout 3 1/3 to 3 4/5 in head; eye 2 4/5 to 3 1/3, equals or greater than snout, greater than interorbital; preoral oblique, 1 1/3 to 1 2/5 in eye; maxillary reaches 2/5 to 1/2 in eye, length from front end 3 to 3 1/2 in head; teeth minute, simple, villiform, in bands in jaws of 4 or 5 irregular series, outer upper row little enlarged anteriorly; interorbital 4 1/8 to 4 3/5 in head, 1 1/3 to 1 1/2 in eye, low, nearly level or with slight depression each side. Gill rakers 1 + 7 short spinescent tubercles on second arch, 1/3 of gill filaments, which 2 1/2 in eye.

Scales 138 in lateral line, of which about 10 forward of vent; 14 above, 22 below, 48 predorsal. Scales adherent, finely spinescent or velvety to touch, smaller on head than on body. Muzzle above spinescent, lower surface below infraorbital ridges smooth and naked.

Scales with 3 to 10 parallel series of apical denticles, last spines extending beyond scale edge; circuli coarse.

D. II, 10 to II, 12—120? to end of broken caudal, second simple ray long as head (end broken), front edge with row of wide set minute denticles; interdorsal space 2/2/3 in head; A. 128? (though as base of fin split most of rays broken out), fin much higher than low second dorsal; pectoral rays I, 18 to I, 21, fin 1 2/3 to 1 4/5 in head; ventral rays I, 11 to I, 16, fin 1 2/5 to 1 2/3 in head, first ray ending in filament.

Brown, lower side of head and body grayish. Under posterior portion of head, breast and belly dark to blackish. Iris gray. Inside mouth dark and of gill opening blackish.

Japan. A. small species, many preserved specimens pale or light reddish brown to russet. The under surface of head, breast and belly most always dark. Often first dorsal pale yellowish brown. basally and like pectoral dusky terminally.

U. S. N. M., No. 50937. Oi Gawa, N.49°,W. 2.8 miles, off Honshu. In 207 to 250 fathoms. May 12, 1900. Albatross Collection (D.3721). Length 195 mm. Type of Nezumia condylura.

U. S. N. M., No. 51472. Data like preceding. Albatross Collection (D.3721). Length 110 to 147 mm. 4 examples.

U. S. N. M., No. 77214.

In 250 fathoms.

Albatross Collection (D.5062). Length 182 to 187 mm. 2 examples.

U. S. N. M., No. 77215.

In 211 fathoms. October 15, 1906.

Albatross Collection (D.5066). Length 147 to 170 mm. 4 examples.

U. S. N. M., No. 77216.

In 292 fathoms. October 23, 1906.

Albatross Collection (D.5086). Length 158 to 180 mm. 2 examples.

U. S. N. M., No. 77217.

In 235 fathoms. October 15, 1906.

Albatross Collection (D.5065). Length 115 to 190 mm. 2 examples.

U. S. N. M., No. 77218.

In 293 fathoms. October 15, 1906.

Albatross Collection (D.5067). Length 200 mm.

U. S. N. M., No. 77219.

In 369 fathoms. October 25, 1906.

Albatross Collection (D.5088). Length 135 mm.

U. S. N. M., No. 77220 Japan.

1906.

Albatross Station (lost). Length 167 mm.

U. S. N. M., No. 77221.

In 440 fathoms. August 30, 1906.

Albatross Collection (D.4972). Length 153 mm.

U. S. N. M., No. 77222.

In 332 fathoms. October 13, 1906.

Albatross Collection (D.5061). Length 165 mm.

U. S. N. M., No. 77223.

In 297 fathoms. October 13, 1906.

Albatross Collection (D.5059). Length 123 to 187 mm. 3 examples.

U. S. N. M., No. 77224.

In

Albatross Collection (D.4967). Length 133 mm.

Lionurus darus Gilbert and Hubbs

Lionurus darus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (146) 197, 1916 (type locality : Suruga Gulf, Hondo, 197 fathoms).

Lionurus durus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, pl. 10, fig. 1, 1916.

Depth 8; head 6 2/5, width 2 2/5. Snout 3 in head; eye 3, greater than snout or interorbital; maxillary reaches 1/4 in eye, length from front end 3 in head; preoral nearly vertical, length 4 1/3; mandibular barbel slender, 1 1/3 in eye; teeth villiform, minute, in 3 or 4 irregular series in jaws; interorbital 4 1/5 in head, low, nearly level. Gill rakers 2 + 7 low spinescent tubercles on second arch, 1/3 of gill filaments, which 2 2/5 in eye.

Scales 100 in lateral line to end of broken tail, of which 10 forward of vent; 11 above, 25 below, 36 predorsal. Scales firmly adherent, finely spinulose or velvety to touch, on head equal to those on body. Scales with 10 or 11 parallel rows of slender spinules apically, last extended beyond hind scale edge; circuli moderate.

D. II, 10__148?, second simple ray (broken) with row of well spaced denticles along front edge, length 1 + 1/3 times head; interdorsal sapce 3 in head; A. 135?, much higher than low second dorsal; pectoral rays I, 18, fin 1 3/4 in head; ventral rays I, 8, fin 1 3/4.

Brown, becoming darker on under surface of head posteriorly, breast and belly, last blackish below. Iris dark gray. Inside mouth pale and gill opening brownish. Fins brown, dusky basally

Japan.

U. S. N. M., No. 76867.

In 197 fathoms.

Albatross Collection (D.5060). Length 132 mm. Type.

Lionurus decimalis Gilbert and Hubbs

Lionurus decimalis Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 560, fig. 40, 1920 (type locality : Palawan Passage, 375 fathoms).

Depth 4 2/3 to 5; head 5 to 5 3/4, width 1 4/5 to 2. Snout 3 3/4 to 4 in head; eye 3, greatly exceeds snout, subequal with interorbital; preoral region nearly vertical, length 4 in head; maxillary reaches 1/5 to 1/4 in eye, greatly inclined, length from front end 3 to 3 1/2 in head; no barbel; teeth minute in villiform bands in jaws, equally wide above and below, of 5 irregular series; interorbital 3 1/5 to 3 1/4 in head, low, with rather wide median depression. Gill rakers 2 + 7 short spinescent tubercles on second arch, 1/3 of gill filaments, which 1/2 of eye.

Scales 85 in lateral line to caudal base, of which 5 forward of vent; 12 above, 21? below, 30 predorsal. Scales partly adherent, finely spinescent, though spinules more developed on muzzle and infraorbital ridge, scales also equally large on head as on body. Scales with 6 slightly radiating rows of fine slender spinules apically; circuli moderate.

D. II, 11__87, second simple ray with row of minute wide set denticles along its front edge, long as head; interdorsal space 4 to 4 1/2 in head; A. 88, much higher than low second dorsal or 3? in head; pseudocaudal distinct, small, 1 3/5 in eye; pectoral rays I, 17 to I, 21, length 1 2/5 to 1 1/2? in head; ventral rays I, 9, fin 2? (damaged).

Brown, becoming neutral gray on lower sides of head and below neutral black, which color also extended on breast and belly. Iris grayish. Fins brown, ventrals dark or dusky.

Philippines. Known chiefly by its blunt head, with very short obtuse snout.

U. S. N. M., No. 82667. Point Tabonan, S.89°E., 33.5 miles (lat. 10°57'45"N., long. 118°38'15"E.), Palawan Passage. In 375 fathoms. December 27, 1908. Albatross Collection (D.5343). Length 143 mm.

U. S. N. M., No. 82668. Same data as preceding. Length 151 mm. Type.

Lionurus evides Gilbert and Hubbs

Lionurus evides Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 557, fig. 39, 1920 (type locality : vicinity of Sibuko Bay, Borneo, 260 fathoms; between Gillolo - Makyan; 298 fathoms). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 75, 1929 (compiled).

Depth 7 (to end of broken tail); head 6, width 2 1/4. Snout 3 3/5 in head; eye 3 3/5, 1 in snout, 1 in interorbital; maxillary reaches 2/3 in eye, length from front end equals eye; slender mandibular barbel 2 in eye; teeth fine, even, in villiform bands in jaws, in 4 irregular rows above and 5 or 6 below, mandibular bands much wider; interorbital 3 1/3 in head, low, level. Gill rakers 0 + 7 to 9 short spinescent tubercles on second arch, 1/4 of gill filaments, which 1 4/5 in eye.

Scales 140? in lateral line to end of broken caudal, of which 7 forward of vent; 8 to 10 above, 20? below, 33 predorsal. Scales adherent, finely spinescent or rough velvety to touch, though spinules more prominent on snout end and infraorbital ridges; scales on head slightly smaller than largest body scales. Scales with 10 parallel rows of spinules apically, of which most posterior project beyond scale edge; circuli moderate.

D. II, 9 to II, 11__102? (to end of broken tail), second simple dorsal ray slender, with row of small, wide-set front denticles and terminally ending in filament nearly long as head; interdorsal space 2 3/4 in head; A. 108? (to end of broken tail), fin much higher than low second

dorsal; pectoral rays I, 19 to I, 21, fin 1 3/5 in head; ventral I, 10 to I, 14, fin 1 1/5, first ray ending filament.

Brown, becoming gray or dark neutral gray on sides and under surface of head, breast and belly, below nearly black. Inside mouth and gill opening blackish. Iris gray. Fins pale brown. ventrals dark or dusky basally.

East Indies.

U. S. N. M., No. 78231. Mabul Island (NW.) N.3°W., 2.8 miles (lat. 4°12'10"N., long. 118°38'08"E.), Sibuko Bay, Borneo. In 260 fathoms. September 29, 1909. Albatross Collection (D.5589). Length 153 mm. Type.

Lionurus fasciatus (Weber)

Macrurus fasciatus Weber, Siboga Exped., vol. 57, p. 157 (type locality : lat. 7°15'S., long. 115°15!6E., Madura Sea, 289 meters; Arafura Sea, 204 meters). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 73, fig. 15, 1929 (types).

Macrurus vittatus Weber, Siboga Exped., vol. 57, pl. 1, fig. 5, 1913.

Lionurus vittatus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 559, 1920 (copied).

Lionurus filicauda (Günther)

Coryphaenoides filicauda Günther, Ann. Mag. Nat. Hist., ser. 5, vol. 2, p. 27, 1878 (type locality : deep seas both sides of South America, 1375 to 2650 fathoms).

Macrurus filicauda Günther, Rep. Voy. Challenger, vol. 22, p. 141, pl. 34, fig. B, 1887 (types; Antarctic Ocean; 1375 to 2650 fathoms).

Macrurus (Lionurus) filicauda Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 391, 1906 (reference).

Lionurus filicauda Goode and Bean, Oceanic Ichth., p. 409, pl. 98, fig. 342, 1895 (copied). —Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p. 2592, 1898 (copied). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 396, 1899 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference).

Lionurus infranudus Gilbert and Hubbs

Lionurus infranudus Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 555, fig. 38, 1920 (type locality : lat. 4°6'50"N., long. 118°47'20"E., Sibuko Bay, Borneo, 347 fathoms). —Weber and Beaufort, Fishes Indo Austral. Arch., vol. 5, p. 74, 1929 (compiled).

Depth 7 1/5; head 5 1/10, width 2. Snout 3 1/6 in head; eye 3 4/5, 1 1/8 in snout, greater than interorbital; maxillary reaches 1/2 in eye, length from front end 3 2/3 in head; mandibular barbel 1 1/4 in eye; teeth fine, even, in broad villiform bands in jaws, of 7 irregular series, bands equally wide; interorbital 5 in head, low, nearly level. Gill rakers 0 + 6 short spinescent knobs on second arch, 1/3 of gill filaments, which 2 1/3 in eye.

Scales 116 in lateral line to pseudocaudal, of which 17 forward of anal origin; 10 above, 20? below, 40? predorsal. Scales firmly adherent, finely spinulose, equally large posteriorly on head as on body. Scales with about 12 series of rather long slender spinules apically, most posterior extending beyond scale edge; circuli moderate.

D. II, 12__100, second simple ray slender, with row of wide-set small denticles along its front edge and terminally ends in slender filament, length 3 1/5 in total fish; interdorsal space 3 in head; A. 91, fin much higher than low second dorsal; pseudocaudal 1 1/4 in eye; pectoral rays I, 20, fin 1 4/5 in head; ventral rays I, 11, fin 1 2/5 in head, first ray ending in short filament.

Brown, becoming neutral gray to blackish on under surface of head, breast and belly. Jaws and under surface of snout pale brown. Iris grayish. Inside mouth and gill openings black. Fins brownish, first dorsal and paired fins blackish brown basally.

East Indies.

U. S. N. M., No. 82669. Sipadan Island (M.) West, 9.4 miles (lat. 4°06'50"N., long. 118°47'20"E.), Sibuko Bay, Borneo. In 347 fathoms. September 28, 1909. Albatross Collection (D.5586). Length 203 mm.

Lionurus leonis Barnard

Lionurus leonis Barnard, Ann. Mag. Nat. Hist., ser. 9, vol. 15, p. 503, 1925 (type locality : off Cape Point, 90 to 345 fathoms); Ann. South Afric. Mus., vol. 21, pt. 1, p. 349, pl. 13, fig. 6, June 1925 (types).

Lionurus liolepis (Gilbert)

Macrurus (Lionurus) liolepis Gilbert, Proc. U. S. Nat. Mus., vol. 13, p. 117, 1890 (type locality : off southern California, 603 fathoms).

Macrurus liolepis Garman, Mem. Mus. Comp. Zool., vol. 24, p. 199 (396), 1899 (lat. 16°to 27°N., long. 99° to 110°W., 660 to 905 fathoms).

Lionurus liolepis Goode and Bean, Oceanic Ichth., p. 409, 1895 (copied), —Jordan and Evermann, Bull. U. S. Nat. Mus., No. 47, pt. 3, p. 2593, 1898 (copied). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1917 (reference).

Depth 5 3/4 to 6 1/4; head 4 3/4 to 4 4/5, width 1 7/8 to 2. Snout 3 to 4 in head; eye 3 3/4 to 4 1/4, little greater than snout to 1 1/8 in snout, equals interorbital; maxillary reaches 3/5 to 2/3 in eye, length 3 to 3 1/5 in head; mandibular barbel 1 1/4 to 1 1/3 in eye; preoral space oblique, well inclined, length 5 3/5 to 5 3/4 in head; teeth minutely villiform, even, in bands in jaws, of 3 or 4 irregular series above and 4 to 6 below with lower band wider; interorbital 4 1/4 to 4 2/5 in head, broad, low, depressed medially. Gill rakers 2 + 7 short knobs on second arch, 1/4 of gill filaments, which 1/2 of eye.

Scales 162 in lateral line, of which 16 forward of vent; 8 above, 26 below, 38 predorsal. Scales very deciduous, mostly fallen, minutely spinescent and equally large on head as on body. Scales with 5 or 6 series of small spinules or denticles apically, none extended beyond hind scale edge; circuli moderate.

D. II, 10__132, second simple ray smooth and extended terminally in filament, 1 3/4 to 2 in head; interdorsal space 2 1/2 to 2 4/5; A. 128, much higher than low second dorsal; pectoral rays I, 20 or I, 21, fin 1 4/5 to 2 1/3 in head; ventral I, 9 to I, 11, fin 2 1/4 to 2 3/4 in head.

Brown, becoming dark or chocolate to neutral brown on under surface of head, breast and belly. Iris grayish. Inside mouth brownish and gill opening dusky to blackish. Fins brownish, ventrals darker.

Off California.

U. S. N. M., No. 44271. Lat. 33°49'45"N., long. 119°24'30"W., off southern California. In 603 fathoms. February 12, 1889. Albatross Collection (D.2980). Length 243 mm, type of Macrurus (Lionurus) liolepis. Also 2 paratypes, same data, 218 to 268 mm.

U. S. N. M., No. 46472. Same data as type. Length 115 to 225 mm. 16 examples.

U. S. N. M., No. 46521. Lat. 18°17'30"N., long. 114°43'15"W., Revillagigedo Islands. In 460 fathoms. March 6, 1889. Albatross Collection (D.2992). Length 120 to 195 mm. 5 examples, in poor preservation.

U. S. N. M., No. 46597.

Albatross Collection. Length 283 mm.

U. S. N. M., No. 57862.

Albatross Collection ( ). Length 168 to 350 mm. 6 examples in poor

preservation. All dark brown, with dark or neutral black chest and abdomen.

U. S. N. M., No. 75628.

Albatross Collection (D.4403). Length 213 5o 252 mm. 2 examples.

U. S. N. M., No. 75629.

In 4 fathoms.

Albatross Collection (D.4516). Length 184 mm.

U. S. N. M., No. 75630.

Albatross Collection (D.4416). Length 122 to 248 mm. 7 examples.

U. S. N. M., No. 75631.

Albatross Collection (D.4423). Length 130 to 280 mm. 4 examples.

U. S. N. M., No. 75632.

Albatross Collection (D.4317). Length 125 to 263 mm. 10 examples.

Albatross Collection (D.4335).

Length 195 to 260 mm. 7 examples. Rather dark brown.

U. S. N. M., No. 75633.

Albatross Collection (D.4453). Length 111 mm.

U. S. N. M., No. 75634.

Albatross Collection (D.4405). Length 133 to 137 mm. 2 examples.

U. S. N. M., No. 75635.

Albatross Collection (D.4333). Length 100 mm.

U. S. N. M., No. 75636.

Albatross Collection (D.4307). Length 104 to 151 mm. 3 examples.

U. S. N. M., No. 75637.

Albatross Collection (D.4415). Length 177 to 335 mm. 4 examples.

U. S. N. M., No. 75638.

Albatross Collection (D.4428). Length 183 to 315 mm. 16 examples.

U. S. N. M., No. 75640.

Albatross Collection (D.4351). Length 205 to 347 mm. 7 examples.

U. S. N. M., No. 77495.

Albatross Collection (D.333). Length 143 to 157 mm. 3 examples

U. S. N. M., No. 87580.

Albatross Collection (D.5683). Length 140 mm.

Lionurus microlepis (Günther)

Coryphaenoides microlepis Günther, Ann. Mag. Nat. Hist., ser. 5, vol. 2, p. 26, 1878 (type locality : off Matuka, Fiji, 215 fathoms).

Macrurus microlepis Günther, Rep. Voy Challenger, vol. 22, p. 142, 1887 (type). —Goode and Bean, Oceanic Ichth., p. 409, 1895 (name).

Lionurus microlepis Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (name). —Whitley, Journ. Pan Pacific Inst., vol. 2, No. 1, p. 4, Jan. - March, 1927 (reference). —Fowler, Mem. Bishop Mus., vol. 11, No. 5, p. 320, 1931 (compiled).

Lionurus nigromaculatus (McCulloch)

Macrourus nigromaculatus McCulloch, Rec. Austral. Mus., vol. 6, No. 5, p. 346, pl. 63, figs. 1-1a, July 18, 1907 (type locality : 35 miles east of Sydney, New South Wales, 800 fathoms).

Lionurus nigromaculatus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference). —Barnard, Ann. South African Mus., vol. 21, pt. 1, p. 348, June 1925 (off Cape Point and East London, 150 to 300 fathoms). —McCulloch, Austral. Mus. Mem., vol. 5, pt. 1, p. 126, June 29, 1929 (compiled).

Lionurus parvipes (Smith and Radcliffe)

Macrourus parvipes Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 124, pl. 28, fig. 1, 1912 (type locality : Gomomo Island, Dutch East Indies, 1262 fathoms).

Lionurus parvipes Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 562, 1920 (Gulf of Tomini, Celebes; Pitt Passage; Macassar Strait; 1089 to 1262 fathoms). Weber and Beaufort, Fishes Indo Austral. Arch., vol. 5, p. 75, 1929 (compiled).

Lionurus proximus (Smith and Radcliffe)

Macrourus proximus Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 119, pl. 26, fig. 2, 1912 (type locality : Sogod Bay, Leyte, 502 fathoms).

Lionurus proximus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (146) 201, 1916 (Eastern Sea; Bungo Channel; off Shio, Misaki; lat. 34°9'N., long. 137°55'E.; 253 to 544 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 554, 1920 (north of Leyte; between Siquijor and Bohol; 392 to 554 fathoms).

Macrourus nasutus (not Günther). Jordan and Gilbert, Bull. U. S. Fish Comm., vol. 22, p. 616, 1902 (1904) (Izu specimen).

U. S. N. M., No. 77225.

In 507 fathoms. September 1, 1906.

Albatross Collection (D.4980). Length 270 to 285 mm. 6 examples in poor preservation.

U. S. N. M., No. 77226.

In 544 fathoms. August 31, 1906.

Albatross Collection (D. 4977). Length 241 mm.

U. S. N. M., No. 77227.

Albatross Collection (D.4968). Length 120 mm.

Lionurus pudens (Gilbert and Thompson)

Nezumia pudens Gilbert and Thompson, in Thompson, Proc. U. S. Nat. Mus., vol. 50, p. 472, pl. 5, fig. 2, 1916 (type locality : lat. 38°8'S., long. 75°53'W., off Lota, Chile, 677 fathoms).

Lionurus pudens Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference).

Depth 7; head 5, width 2. Snout to eye 3 4/5 in head, 1 1/10 in orbit; eye 4 1/4 in head, 1 1/5 in snout, 1 in interorbital; orbit 3 1/2 in head, 1 in snout; preoral length slightly inclined from vertical, length 5 1/5 in head, maxillary reaches 1/4 in eye, length from front end 3 1/5 in head; mandibular barbel 1 1/2 in orbit; teeth in rather broad villiform bands in jaws, of 5 or 6 irregular rows; interorbital 5 in head, 1 1/4 in orbit. Gill rakers 2 + 8 low spinescent tubercles on second arch, 1/3 of gill filaments, which 1/3 of orbit.

Scales (pockets) 108? in lateral line; 8 above, 18? below, 40? predorsal forward to front of snout of which 20 forward opposite hind orbit edge. Scales with 10 or 11 parallel apical rows of spinules, last not extending to hind edge of scale; circuli moderate, obsolete apically.

D. II, 10__117, second simple ray slender, with row of antrorse denticles along front edge, length 1 2/5? in head; interdorsal space 3; A. 112, fin height 4 1/2? in head; pectoral rays I, 22, fin 2? in head; ventral rays I, 10, fin 2 1/4?

Pale brown. Muzzle paler than body. Under surface of head, branchiostegal region, chest, breast and belly blackish brown to neutral black. Iris grayish. Inside mouth pale. Inside gill opening largely whitish, dark above. Fins pale. Ventrals dusky to blackish, especially basally.

Chile.

U. S. N. M., No. 76860. Lat. 38°8'S., long. 75°53'W., off Chile. In 677 fathoms. February 14, 1888. Albatross Collection (D.2791). Length 171 mm. Type of Nezumia pudens.

Lionurus pumiliceps (Alcock)

Macrurus pumiliceps Alcock, Journ. Asiatic Soc. Bengal, vol. 63, pt. 2, p. 125, 1894 (type locality : Laccadive Sea, 719 fathoms); Illustrat. Zool. Investigator, pt. 3, pl. 16, fig. 3, 1895. —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 396, 1899 (reference).

Macrurus (Macrurus) pumiliceps Alcock, Descript. Cat. Deep Sea Fishes Ind. Mus., p. 113, 1899 (Arabian Sea between Maldives and Travancore, 719 fathoms). —Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 262 (Agulhas Bank; east coast of Africa; 500 to 1242 meters), p. 389 (reference), 1906.

Lionurus pumiliceps Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1917 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 559, 1920 (off west Luzon; east Luzon; Sibuko Bay, Borneo; Gulf of Tomini, Celebes; Buton Strait, Gulf of Boni; Flores Sea; Macassar Strait; 400 to 900 fathoms). —Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p. 347, June 1925 (Compiled). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 78, 1929 (compiled).

Depth 7 to 8 1/2; head 6 1/4 to 6 3/4, width 2 1/5 to 2 1/4. Snout 3 1/8 to 3 1/5 in head; eye 3 1/4 to 3 2/5, 1 to 1 1/10 in snout; preoral profile nearly vertical, length 4 3/4 to 5 in head; maxillary reaches 1/5 to 1/4 in eye, length from front end 3 to 3 1/5 in head; mandibular barbel 1 1/2 to 1 3/4 in eye; teeth minute, in villiform bands in jaws, of 5 or 6 irregular series; interorbital 4 to 4 1/5 in head, 1 1/5 to 1 1/4 in eye, low, depressed concavely in middle. Gill rakers 0 + 8 low spinescent tubercles on second arch, 1/3 of gill filaments, which 1/3 of eye.

Scales 167 in lateral line; 8 or 9 above, 14 or 15 below, 40 predorsal forward to front of snout, of which 20 forward opposite hind orbit edge. Scales with 6 to 8 slightly converging rows of rather long apical spinules, last extending little behind hind edge of scale; circuli moderate, complete.

D. II, 11 or II, 12--130, second simple ray pungent, with row of antrorse denticles along its front edge, length 1 1/3 to 1 2/5 in head; interdorsal space 1 4/5 to 2 2/5; A. 118 to 133, fin height greater than second dorsal or 5? in head; pectoral rays I, 19 or I, 21, fin 1 1/2 in head, ventral rays I, 10 to I, 12, fin 1 4/5 to 2, first ray ending in filament.

Brown generally. Head usually darker than tail, especially below where often blackish brown or netral black. Iris dark gray. Inside mouth gray to blackish. Inside gill opening pale below, dark above and branchiostegal region blackish brown. Chest, breast and belly neutral black to blackish. Fins mostly pale, paired ones darker.

South Africa, tropical Indian Ocean, East Indies, Philippines.

U. S. N. M., No. 82670.

Albatross Collection (D.5587). Sipidan Island (W.), S.12°E., 3.8 miles (lat. 4°10'35"N., long. 118°37'12"E.), Sibuko Bay, Borneo. In 415 fathoms. September 28, 1909. Length 140 mm.

Albatross Collection (D.5607). Binang Unang Island (E.) S.36°E., 5 miles (lat. 0°04'S., long. 121°36'E.), Gulf of Tomini, Celebes. In 761 fathoms. November 18, 1909. Length 185 mm.

Albatross Collection (D.5648). North Island (S.), N.87°E., 10.2 miles (lat. 5°35'S., long. 122°20'E., Buton Strait. In 559 fathoms. December 16, 1909. Length 253 mm.

Albatross Collection (D.5651). Buginkali Point, S.67°E., 21 miles (lat. 4°43'50"S., long. 121°23'24"E.), Gulf of Boni, Celebes. In 700 fathoms. December 17, 1909. Length 223 mm.

Albatross Collection (D.5664). Kopoposang Light, N.66°E., 3.8 miles (lat. 4°43'22"S., long. 118°53'18"E.), Macassar Strait, Celebes. In 400 fathoms. December 28, 1909. Length 186 mm.

U. S. N. M., No. 82671. Atulayan Island (E.), S.65°W., 4 miles (lat. 13°36'48"N., long. 123°38'24"E.), east coast of Luzon. In 500 fathoms. June 18, 1909. Albatross Collection (D.5469). Length 125 to 185 mm. 5 examples.

U. S. N. M., No. 82672.

Albatross Collection (D.5439). Hermana Mayor Light, S.33°E., 12.6 miles (lat. 15°58'15"N., long. 119°40'20"E.), west coast of Luzon. In 940 fathoms. May 9, 1909. Length 230 mm.

Albatross Collection (D.5605). Dodepo Island (W.), N.14°W., 5.9 miles (lat. 0°21'33"N., long. 121°34'10"E.), Gulf of Tomini, Celebes. In 647 fathoms. November 16, 1909. Length 223 mm.

Albatross Collection (D.5567). Dammi Island (N.), N.81°W., 9 miles (lat. 5°48"N., long. 120°33'45"E.), north of Tawi Tawi. In 268 fathoms. September 21, 1909. Length 198? to 205 mm. 3 examples.

U. S. N. M., No. 82673.

Albatross Collection (D.5469). Atulayan Island (E.), S.63°W., 4 miles (lat. 13°36'48"N., long. 123°38'24"E.), east coast of Luzon. In 500 fathoms. June 18, 1909. Length 210 mm.

Albatross Collection (D.5605). Dodepo Island (W.) N.14°W., 5.9 miles (lat. 0°21'33"N., long. 121°34'10"E.), Gulf of Tomini, Celebes. In 647 fathoms. November 16, 1909. Length 213 mm.

Albatross Collection (D.5607). Binang Unang Island (E.) S.36°E., 5 miles (lat. 0°4'S., long. 121°36'E.), Gulf of Tomini, Celebes. In 761 fathoms. November 18, 1909. Length 228 mm.

Albatross Collection (D.5654). Cape Tabako, N.17°E., 21.5 miles (lat. 3°42'S., long. 120°45'50"E.), Gulf of Tomini, Celebes. In 805 fathoms. December 18, 1909. Length 234 mm.

Albatross Collection (D.5587). Sipidan Island (W.) S.12°E., 3.8 miles (lat. 4°10'35"N., long. 118°37'12"E.), Sibuko Bay, Borneo. In 415 fathoms. September 28, 1909. Length 185 mm.

U. S. N. M., No. 82694.

Albatross Collection (D.5467). Atulayan Island (S.), S.79°W., 2.5 miles (lat. 13°35'27"N., long. 123°37'18"E.), east coast of Luzon. In 480 fathoms. June 18, 1909. Length 148 to 170 mm. 2 examples.

Albatross Collection (D.5648). North Island (S.), N.87°E., 10.2 miles (lat. 5°35'S., long. 122°20'E.), Buton Strait. In 559 fathoms. December 16, 1909. Length 212 mm.

Albatross Collection (D.5650). Lamulu Point, N.5°W., 12.5 miles (lat. 4°53'45"S., long. 121°29'E.), Gulf of Boni, Celebes. In 540 fathoms. December 17, 1909. Length 230 to 243? mm. 2 examples.

Albatross Collection (D.5657). Olang Point, N.61°W., 15.5 miles (lat. 3°19'40"S., long. 120°36'30"E.), Gulf of Boni, Celebes. In 492 fathoms. December 19, 1909. Length 120 mm.

Albatross Collection (D.5658). Cape Loko Loko, S.31°W., 12 miles (lat. 3°32'40"S., long. 120°31'30"E.), Gulf of Boni, Celebes. In 510 fathoms. December 19, 1909. Length 165 mm.

Lionurus richardi (Weber)

Macrurus richardi Weber, Siboga Exped., vol. 57, p. 154, pl. 1, figs. 3-3a, 1913 (type locality : Macassar Strait; Celebes Sea; Ceram Sea; Flores Sea; 538 to 1260 meters).

Lionurus richardi Gilbert and Hubbs, Bull. U. S. Nat. Mus., No. 100 vol. 1, p. 559, 1920 (copied). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 76, fig. 16, 1929 (types).

Lionurus smiliophorus (Vaillant)

Macrurus smiliophorus Vaillant, Expèd. Sci. Travailleur et Talisman, Poiss., p. 242, pl. 22, fig. 1, a-d, 1888 (type locality : Gulf of Gascony; off Morocco; Soudan; Cape Verde Islands; 460 to 1319 meters). —Goode and Bean, Oceanic Ichth., p. 392, 1895 (note).

Lionurus smiliophorus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (name).

Depth 6 1/2; head 6, width 2. Snout 3 1/3 in head, 1 1/5 in eye; eye 3 in head; preoral length 4 1/8; maxillary reaches 2/5 in eye, length from front end 2 7/8 in head; mandibular barbel 1 7/8 in eye; teeth in villiform bands in jaws, of 4 or 5 irregular rows; interorbital 5 1/5 in head, 1 2/3 in eye, low, depressed concavely. Gill rakers 0 + 8 low spinescent tubercles on second arch, 1/2 of gill filaments, which 4 1/5 in eye.

Scales 150 in lateral line; 9 above, 14 below, 44 predorsal of which 18 forward opposite hind eye edge. Scales with 14 to 16 converging to parallel apical rows of spinules, last sagittate and extend well over hind edge of scale; circuli fine; obsolete apically.

D. II, 10__138, second simple ray slender, pungent, front edge with row of antrorse spinules, length 1 1/8 in head; interdorsal space 1 2/5; A. 136, fin height 2 2/3 in head; pectoral rays I, 17, fin length 1 3/5 in head; ventral rays I, 8, fin 1 9/10, first ray ending in filament.

Largely uniform brown. Iris grayish. Inside mouth pale. Inside gill opening dark or blackish brown above, pale to whitish

below. Under surface of head, branchiostegal region, breast, chest and belly neutral black to blackish brown. Fins all brownish, first dorsal darker terminally and paired ones blackish brown basally.

Eastern Atlantic.

U. S. N. M., No. 42098.

Paris Museum (86+149).

Length 243 mm.

Lionurus spinosus Gilbert and Hubbs

Lionurus spinosus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (146) 199, pl. 10, fig. 2, 1916 (type locality : Eastern Sea, 427 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 554, 1920 (off east Luzon, 300 to 560 fathoms).

Depth 7; head 5 3/4, width 1 7/8. Snout 3 1/5 in head; eye 4, 1 1/5 in snout, little greater than interorbital; maxillary reaches opposite eye center, length from front end 3 2/5 in head; mandibular barbel 1 2/3 in eye; teeth fine, simple, conic, in bands in jaws, of 7 or 8 irregular rows with outer upper row enlarged; interorbital 4 1/6 in head, low, slightly convex. Gill rakers 2 + 7 low knobs on second arch, 1/3 of gill filaments, which 2 1/2 in eye.

Scales 157 of which 7 forward of vent; 10 above, 24 below, 42 predorsal. Scales all finely spinescent, finely rough to touch, adherent, rougher on muzzle. Scales on posterior part of head equally large as on body. Scales without striae; apically area of 6 to 8 irregular rows of slender and rather long denticles; circuli moderate.

D. II, 10__142, second simple ray pungent, front edge denticulated, spinules small and few, length 4 2/3 in total fish; A. 155, much higher than low second dorsal; pectoral rays I, 20, fin 2 in head; ventral I, 7, fin 2, first ray ending in short filament.

Brown. Iris pale. Under surface of head posteriorly, branchiostegals, breast and belly chocolate to neutral blackish. Inside mouth dark gray and gill opening blackish. Fins brown, ventrals darker or dusky.

Philippines, Japan. Seems to differ from Lionurus proximus (Smith and Radcliffe) in the longer outer upper or premaxillary teeth, naked lower surface of head, longer spinules on scales and longer dorsal spine.

U. S. N. M., No. 76868.

In 427 fathoms.

Albatross Collection (D.4915). Length 275 mm. Type.

Genus Mataeocephalus Berg

Mataeocephalus Berg, Commun. Mus. Buenos Aires, vol. 1, p. 43, 1899. (Type Coelocephalus acipenserinus Gilbert and Cramer, virtually. Mataeocephalus Berg proposed to replace Coelocephalus Gilbert and Cramer.)

Coelocephalus (not Agassiz) Gilbert and Cramer, Proc. U. S. Nat. Mus., vol. 19, p. 422, 1896. (Type Coelocephalus acipenserinus Gilbert and Cramer, orthotypic.)

Body and tail slender, compressed. Head depressed, upper profile nearly straight. Snout projects, with distinct angulation produced by ridge extended downwards before nostrils and ending in bony prominence or cluster of spines on lateral edge of snout dividing an anterior marginal portion, converging with that of other side into snout tip, which usually formed by spinigerous bifid tubercle; posterior portion strengthened by suborbital ridge, which extends below hind edge of orbit and divides cheek into upper, somewhat sloping and lower nearly horizontal part. No spinous occipital ridges. Head below usually naked, also nasal area. Mouth small, entirely inferior, upper jaw less than 1/3 of head. Gill membranes unite below preopercle ridge. Branchiostegals 6 or 7. Scales imbricate, spinules arranged in parallel or nearly parallel rows. Second simple dorsal ray pungent, usually sharply serrated. Pectoral below and somewhat before first dorsal origin. Ventral below pectoral, outer filamentous ray prolonged and no naked pit between fin bases. Vent close before front of anal.

Tropical deep seas.

Mataeocephalus acipenserinus (Gilbert and Cramer)

Coelocephalus acipenserinus Gilbert and Cramer, Proc. U. S. Nat. Mus., vol. 19, p. 422, pl. 42, fig. 1, 1897 (type locality : Hawaiian Islands, 298 to 375 fathoms).

Coelorhynchus acipenserinus Garman, Mem. Mus. Comp. Zool., vol. 24, p. 397, 1899 (reference).

Macrurus (Malacocephalus) acipenserinus Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 391, 1906 (reference).

Mataeocephalus acipenserinus Gilbert, Bull. U. S. Fish Comm., vo. 23, pt. 2, p. 676, 1903 (1905) (off Molokai, Oahu; Bird Island; Kauai; Maui; Pailolo Channel; 222 to 498 fathoms). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference). —Fowler, Mem. Bishop Mus., vol. 10, p. 87, 1928 (Hawaiian Islands; types).

Depth 7 4/5 to 8 3/5; head 3 9/10 to 4 2/5, width 2 1/10 to 2 3/5. Snout to eye 2 1/3 to 2 3/5 in head; eye 3 4/5 to 4 1/10, 1 2/5 to 1 3/4 in snout; orbit 3 to 3 1/8 in head, 1 to 1 1/5 in snout; preoral length 2 1/3 to 2 1/2 in head; mandibular barbel 4 in eye; teeth uniform, finely villiform in jaws, in rather narrow bands; interorbital 4 2/5 to 4 1/2 in head, 1 1/3 to 1 2/5 in orbit, low, broadly concave. Gill rakers 0 + 6 low spinescent tubercles on second arch, 1/3 of gill filaments, which 3 1/4 in orbit.

Scales (pockets) 90 in lateral line; 7 above, 16? below, 12 predorsal forward till opposite hind eye edge. Scales with 5 to 7 parallel apical rows of long slender spinules, last extending well behind scale edge; circuli moderate, complete.

D. II, 10 or II, 11__75, second simple ray pungent, slender, with row of antrorse spinules along front edge, length 1 4/5 in head; interdorsal space 3 3/5; A. 98, fin height 6?; pectoral rays I, 21 or I, 22, fin 1 7/8 to 2 1/8 in head; ventral rays I, 7 or I, 8, fin 1 3/4 to 2 2/5, first ray ending in filament.

Light brown, head paler above and forward, especially muzzle. Under surface of head pale to whitish, only faint gray tints on mandible below, branchiostegal region and opercles. Isthmus pale, breast coppery and belly behind and above ventral to pectoral bases violaceous black or neutral gray. Iris gray. Inside gill opening forward and below white, above blackish. Fins pale or lighter than tail, except ventrals, which with blackish bases.

Hawaiian Islands.

U. S. N. M., No. 47707. Lat. 21°09'N., long. 157°53'W., Hawaiian Islands. In 298 fathoms. December 6, 1891. Albatross Collection (D.3476). Length 133 mm.

U. S. N. M., No. 47721. Lat. 21°12'N., long. 157°38'30"W., Hawaiian Islands. In 375 fathoms. December 6, 1891. Albatross Collection (D.3474). Length 125 to 188 mm. 4 examples, largest type, others paratypes.

U. S. N. M., No. 47722. Lat. 21°10'30"N., long. 157°48'30", Hawaiian Islands. In 337 fathoms. December 4, 1891. Albatross Collection (D.3471). Length 177 mm.

U. S. N. M., No. 47728. Lat. 21°08'N., long. 157°43'W., Hawaiian Islands. In 351 fathoms. December 6, 1891. Albatross Collection (D.3475). Length 118 to 178 mm. 7 examples.

U. S. N. M., No. 47731. Lat. 21°15'N., long. 157°30'W., Hawaiian Islands. In 313 fathoms. December 6, 1891. Albatross Collection (D.3473). Length 168 mm.

U. S. N. M., No. 55259. Hawaiian Islands. Albatross Station (not given). Length 132 to 172 mm. 10 examples.

Mataeocephalus adustus Smith and Radcliffe

Mataeocephalus adustus Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 126, pl. 28, fig. 3, 1912 (type locality : Gulf of Boni, Celebes, 805 fathoms). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 563, 1920 (Gulf of Tomini; south Patiente Strait; Gulf of Boni, Celebes; 569 to 834 fathoms). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 81, 1929 (compiled).

Mataeocephalus microstomus (Regan)

Macrurus microstomus Regan, Trans. Linn. Soc. London, vol. 12, pt. 3, Zool., p. 221, 1905 (type locality : Saya de Malha Bank, 300 to 500 fathoms).

Mataeocephalus microstomus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference).

Macrurus (Mataeocephalus) microstomus Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 80, 1929 (note).

Mataeocephalus nigrescens Smith and Radcliffe

Mataeocephalus nigrescens Smith and Radcliffe, Proc. U. S. Nat. Mus., vol. 43, p. 125, pl. 28, fig. 2, 1912 (type locality : between Leyte and Mindanao, 735 fathoms). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 563, 1920 (between Marinduque and Luzon; Palawan Passage; Jolo; between Leyte and Mindanao; north Mindanao; Sibuko Bay, Borneo; 340 to 735 fathoms). —Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 80, 1929 (compiled).

Mataeocephalus tenuicauda (Garman)

Macrurus tenuicauda Garman, Mem. Mus. Comp. Zool., vol. 24, p. 216, pl. 49, fig. 1, 1899 (type locality : lat. 7°31'30"N., long 79°14' W., Gulf of Panama, 458 fathoms).

Macrurus (Macrurus) tenuicauda Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 389, 1906 (reference).

Coelorhynchus tenuicauda Garman, Mem. Mus. Comp. Zool, vol. 24, p. 397, 1899 (reference).

Mataeocephalus tenuicauda Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference).

Genus Trachonurus Günther

Trachonurus Günther, Rep. Voy. Challenger, vol. 22, pp. 124, 142.

(Type Coryphaenoides villosus Günther, monotypic.)

Body greatly elongate, strongly compressed, tail very long, slender and tapering. Head short, compressed, laterally vertical, without prominent ridges. Snout obtuse, short, tip high and nearly above front border of mouth. Mouth rather small. Barbel moderate. Teeth in jaws in moderate villiform bands, front premaxillary ones somewhat enlarged or on outer series of both jaws enlarged. Bones of head firm, suborbital ridge little developed. Gill membranes broadly united below preopercle ridge. Gill rakers tubercular. Branchiostegals 7. Scales small, adherent, diamond shaped, densely covered with sharp erect pointed spinules, strongest on enlarged scales along front portion of dorsal and anal base. Naked area behind pectorals, space between ventrals and anus also scaleless. Lateral line nearly straight, or anteriorly with low curve convexly. Sensory canal system moderately developed. Second simple dorsal ray pungent, slender, smooth. Second dorsal fin very low. Ventrals inserted below first dorsal, origin conspicuously behind pectoral origin, first ray filamentous. Vent remote before anal fin.

Two species in tropical and subtropical seas.

Trachonurus sentipellis Gilbert and Cramer

Trachonurus sentipellis Gilbert and Cramer, Proc. U. S. Nat. Mus., vol. 19, p. 429, pl. 45, fig. 1, 1897 (type locality : Hawaiian Islands, 375 fathoms). —Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). —Gilbert, Bull. U. S. Fish Comm., vol. 23, pt. 2, p. 679, 1903 (1905) (off Kauai; Kaiwi Channel; 418 to 804 fathoms). —

Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference). —Fowler, Mem. Bishop Mus., vol. 10, p. 87, 1928 (Hawaiian Islands).

Macrurus (Trachonurus) sentipellis Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 391, 1906 (reference).

Depth 5 4/5 to 8; head 5 to 5 1/4, width 2 to 2 1/8. Snout 3 4/5 to 4 in head, 1 to 1 1/5 in eye; eye 3 1/6 to 3 4/5 in head, 1 to 1 1/6 in interorbital; maxillary reaches 2/5 to 1/2 in eye, length from front end 3 to 3 1/8 in head; preoral length 5 1/2 to 5 2/3; mandibular barbel slender, 8 1/4 to 9; teeth in villiform bands, of 5 irregular rows above and 4 below, also outer row of upper anterior teeth little enlarged; interorbital 3 1/5 to 3 3/5 in head; 1 to 1 1/5 in eye, low, nearly level or with several slight depressions. Gill rakers 2 + 11 short spinescent knobs on second arch, 1/3 of gill filaments, which 2 1/5 in eye.

Scales 138? in lateral line, of which 15 before vent; 7 above 17 below, 38 predorsal. Scales adherent, all spinescent or rough

velvety to touch, little larger on posterior sides of head than on body though small and irregularly defined on muzzle. Scales with about 10 or more spinules, often well over scale apically; circuli moderate.

D. II, 7__114? (tail broken off), second simple ray terminally filamentous and 1 3/5 to 1 2/3 in head; interdorsal space 3 4/5 to 6 2/3; A. 103? (to end of broken tail), fin much higher than low second dorsal; pectoral rays I, 15 or I, 16, fin 2 to 2 3/4 in head; ventral I, 6, fin 2 4/5 to 3 in head.

Nearly uniform brown. Iris dark gray. Under surface of head, breast and belly neutral blackish. Inside mouth and gill opening blackish. Fins brownish.

Hawaiian Islands. Appears to differ from Trachonurus villosus in its little more deeper body, larger eye and mouth, longer barbel, fin rays and scales.

U. S. N. M., No. 51689. Lat. 21°12'N., long. 157°38'30"W., Hawaiian Islands. In 375 fathoms. December 6, 1891. Albatross Collection (D.3474). Length 310 mm. Type.

U. S. N. M., No. 55257.

Albatross Station (not given). Length 80 to 175 mm. 6 examples.

Trachonurus villosus (Günther)

Coryphaenoides villosus Günther, Ann. Mag. Nat. Hist., ser. 4, vol. 20, p. 441, 1877 (type locality : south of Yeddo, Japan).

Macrurus villosus Günther, Rep. Voy. Challenger, vol. 22, p. 142, pl. 36, fig. B, 1887 (south of Yeddo, 345 fathoms; Philippines, 500 fathoms). —Goode and Bean, Oceanic Ichth., p. 409, 1895 (name).

Macrurus (Trachonurus) villosus Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 268 (391), 1906 (north west of Sumatra, 1024 meters).

Trachonurus villosus Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). —Jordan and Snyder, Annot, Zool. Japon., vol. 3, p. 120, 1901 (reference). —Jordan and Richardson, Philippine Journ. Sci., p. 58, 1910 (reference). —Jordan, Tanaka, Snyder, Journ College Sci. Tokyo, vol. 33, p. 420, 1913 (compiled). —Weber, Siboga Exped., vol. 57, p. 165, 1913 (Ceram Sea; Timor Sea; 567 to 924 meters). — Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1917 (reference), P. 205 (east coast of Hondo); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 564, 1920 (east Mindoro; Palawan Passage; Marinduque; Dupon Bay, Leyte; between Cebu - Leyte; Jolo Sea; between Leyte - Mindanao; north Mindanao; between Siquijor - Bohol; between Cebu - Siquijor; Sibuko Bay, Borneo; Buton Strait; 281 to 735 fathoms). —

Weber and Beaufort, Fishes Indo Austral. Archip., vol. 5, p. 83, fig. 18, 1929 (Weber's material).

Depth 8 1/2; head 6 1/3, width 2. Snout 3 4/5 in head; eye 4 1/2, 1 1/5 in snout, 1 2/5 in interorbital; maxillary reaches 3/5 in eye, length from front end 3 in head; mandibular barbel 2 2/5 in eye, teeth in rather coarse villiform bands in jaws, lower bands little broader than upper; interorbital 3 in head, nearly level or only slightly depressed medially. Gill rakers 2 + 7 low knobs on second arch, 1/3 of gill filaments, which 1/2 of eye.

Scales 195? in median lateral series in lateral line, of which 20 before vent; 6 above, 17 below, 44 predorsal. Scales all very finely rough spinescent, rough to touch, smaller and less defined on muzzle and front of head. Scales without striae; apically about 5 rows of spinules; circuli moderate.

D. II, 8__155, second simple ray with front edge entire and ending in filament 1 1/2 in head; A. 135, fin much higher than second dorsal; pseudocaudal small short rudiment 1/3 eye; pectoral rays I, 14, length 2 1/4 in head; ventral rays I, 6, fin 3 in head.

Nearly uniform chocolate brown, head darker or dusky, nearly blackish brown below. Iris dark gray. Inside mouth and gill opening black. Fins all pale brown.

East Indies, Philippines, Japan.

U. S. N. M., No. 76875.

Albatross Collection.

Length 120? mm. In poor preservation.

U. S. N. M., No. 77240.

In 505 fathoms.

Albatross Collection (D.5080). Length 448 mm.

Genus Cetonurus Günther

Cetonurus Günther, Rep. Voy. Challenger, vol. 22, p. (124) 143, 1887.

(Type Coryphaenoides crassiceps Günther, monotypic.)

Body with very short trunk and narrow, slender, tapering tail. Head very large, thick especially forward. Snout short, broad, deep. Eye small, lateral, advanced. Mouth small, inferior. Mandibular barbel small, short. Teeth in villiform narrow bands in jaws. Branchiostegals 7. Pyloric coeca moderate. A series of enlarged scales along dorsal and anal fin bases. Scales small, villose. Head entirely covered with villose scales. Dorsal advanced, on back of head. Anal much higher than second dorsal. Paired fins well developed.

Macrurus microps Vaillant, which I have not located, is given in the list of doubtful forms by Gilbert and Hubbs.

Proc. U. S. Nat. Mus., vol. 51, pp. 146, 147, 1916 (name).

Cetonurus globiceps (Vaillant)

Macrurus globiceps Vaillant, La Nature, No. 560, 1884, p. (type locality —Günther, Rep. Voy. Challenger, vol. 22, p. 143, 1887 (reference). Macrurus (Cetonurus) globiceps Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 391, 1906 (reference). —Murray and Hjort, Depths of the Ocean, p. 398, fig. 271, 1912 (west of Canaries, 1365 meters).

Hymenocephalus globiceps Vaillant, Expéd. Sci. Travailleur et Talisman, Poiss., pp. 214, 386, 1888 (on Vaillant, pl. 20, figs. la-e). — Goode and Bean, Oceanic Ichth., p. 411, pl. 98, fig. 344, 1895 (copied). —Vaillant, Rés. Camp. Sci. Monaco, vol. 52, p. 134, 1919 (lat. 36°55'N., long. 22°22'45"W., 4261 meters).

Cetonurus globiceps Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1916 (reference).

Hymenocephalus crassiceps (not Günther) Vaillant, Exped. Sci. Travailleur et Talisman, Poiss., p. 214, pl. 20, figs. la-e, 1888 (Gulf of Gascony; Soudan; off Azores; 139 to 2995 meters).

Cetonurus crassiceps (Günther)

Coryphaenoides crassiceps Günther, Ann. Mag. Nat. Hist., ser. 5, vol. 2, p. 25, 1878 (type locality : north of Kermadec Islands, 520 to 650 fathoms).

Macrurus crassiceps Günther, Rep. Voy. Challenger, vol. 22, p. 143, pl. 37, 1887 (type).

Macrurus (Cetonurus) crassiceps Brauer, Deutsch. Tiefsee Exped. Valdivia, vol. 15, p. 391, 1906 (reference).

Cetonurus crassiceps Goode and Bean, Oceanic Ichth., p. 411, 1895 (name).

—Garman, Mem. Mus. Comp. Zool., vol. 24, p. 395, 1899 (reference).

—Waite, Rec. Canterbury Mus., vol. 1, No. 1, p. 17, April 25, 1907 (reference). —Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 146, 1906 (name).

Cetonurus robustus Gilbert and Hubbs

Cetonurus robustus Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. (146) 207, pl. 11, fig. 2, 1916 (type locality : off east coast of central Hondo, 649 fathoms); Bull. U. S. Nat. Mus., No. 100, vol. 1, p. 560, 1920 (Gulf of Tomini, Celebes; south Patiente Strait; Gulf of Boni; 525 to 845 fathoms).

Depth 6 1/3 to 7 4/5 (to end of broken tail); head 5 1/4 to 6, width 1 9/10 to 2. Snout 3 to 4 in head; eye 4 to 4 1/2, 1 to 1 2/5 in snout, 1 3/5 to 1 4/5 in interorbital; small, feeble mandibular barbel 1/7 to 1/6 of eye; maxillary reaches 2/5 to 1/2 in eye, length from front end 3 1/8 to 4 in head; teeth fine, even, in villiform bands in jaws, 7 or 8 irregular bands above and 4 or 5 below; interorbital 2 1/5 to 2 1/2, low, with uneven depressions. Gill rakers 0 + 11 short spinescent knobs on second arch, 1/2 of gill filaments, which 1/4 of eye.

Scales 180? in lateral line to end of broken tail, of which 8 forward of vent; 12? above, 38 below, 45 predorsal. Scales all adherent, finely spinescent or rough velvety to touch, equally small on head as on body. Scales with 5 to 10 slender erect spinules apically; circuli moderate.

~~D. II, 9—120? (to end of broken tail), second simple ray SLENDER, WITH ROW OF~~

D. II, 9—120? (to end of broken tail), second simple ray slender, with row of small well spaced denticles on front edge and (damaged) 1 3/4 to 2 1/8? in head; interdorsal length 2 7/8 to 3 1/3; A. 119? (to end of broken tail), fin much deeper than second dorsal; pectoral rays I, 16 (damaged) 2 4/5? to 3? in head; ventral I, 9, (damaged) 4? to 5 1/2?.

Brown, becoming dark neutral gray on jaws, under surface of head, opercles, breast and belly, edges of branchiostegal membranes black. Inside mouth and gill opening black. Fins brownish, ventrals darker. Vent blackish.

Japan.

U. S. N. M., No. 76870.

In 649 fathoms.

Albatross Collection (D.4971). Length 285 mm to end of broken tail. Type.

U. S. N. M., No. 76871.

In 649 fathoms.

Albatross Collection (D.4971). Length 260 to 280 mm. 2 paratypes.

U. S. N. M., No. 76874.

In 600 fathoms. August 30, 1906.

Albatross Collection (D.4973). Length 118? mm to end of broken tail.

Genus Ateleobrachium Gilbert and Burke

Ateleobrachium Gilbert and Burke, Bull. Bur. Fisher., vol. 30, p. 94, 1910 (1912). (Type Ateleobrachium pterotum Gilbert and Burke, orthotypic.).

Body robust, short and deep anteriorly, tapering to long slender tail. Head large, long as trunk. Snout short. Eye large, anterior. Mouth large, lower jaw protruding. Barbel present, minute. Teeth fine, in narrow bands in jaws, none on palate. Gill rakers short, few. Scales not evident. First dorsal very high, nearly long as combined head and trunk. Second dorsal begins close behind first. Anal begins behind second dorsal fin, much higher anteriorly. Pectoral on slender and rather long base, short rays on end of terminal flap. Ventral very long, nearly equals first dorsal.

Possibly postlarval stage.

Ateleobrachium pterotum Gilbert and Burke

Ateleobrachium pterotum Gilbert and Burke, Bull. Bur. Fisher., vol. 30, p. 94, fig. 37, 1910 (1912) (type locality : off Avatcha Bay, east Kamchatka, 300 fathoms). Gilbert and Hubbs, Proc. U. S. Nat. Mus., vol. 51, p. 147, 1916 (reference).

Depth 6 3/4? (to end of broken tail); head 5 1/4, width 2 1/10. Snout 4 2/5 in head from snout tip; eye 3 2/3, equals snout or interorbital; maxillary reaches 3/4 in eye or opposite hind pupil edge, length 2 1/4 in head from snout tip; minute, even, villiform teeth in bands in narrow jaws; interorbital 4 1/4 in head, low, narrow. Gill rakers 2 + 9 short knobs on second arch, 1/3 of gill filaments, which 1 1/4 in eye.

Scales not evident (not shown on Gilbert and Burke's figure).

D. I, 8__76? (to end of broken tail); A. 74? (to end of broken tail); pectoral rays I, 16; ventral rays I, 6.

Brownish. Iris gray. Fins pale or whitish. Belly blackish. Inside mouth and gill opening pale.

Kamchatka.

U. S. N. M., No. 74398.

Albatross Collection (D.4797). Length 70 mm to end of broken tail.